Use Your Own Eyes
by
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This book is dedicated to the memory of W. H. Bates, M. D.
It was his discovery and his lifework that founded and established the system which can prevent the impending degeneration of the eyes of civilized humans. His genius and his fine courage made it possible for him to bequeath this magnificent gift to the race.

INTRODUCTION

THE mighty silence of the great open spaces, the soft warm calm under the palms out on the sands, the cold stillness of the silent frozen worlds, the majestic grandeur of the sunset in the West, the weird influence of the soft light of the moon, the story of the ages in the cold gleaming of the star worlds in the sky, the lure of the lonely vastness of the sea, the soothing cadence of the melody of music in the cars, the silent touch of tender memories, the thrill of a soul in the presence of love—these and kindred of the great primal forces are the real influences guiding the motives and powers of human life.

Our lives are modified, more than we know, by these constant, active influences. Not only are our minds molded, obeying unconsciously these silent orders; but our bodies and organs. There are serious chronic nervous diseases which have no found cause in any change of tissue structure, and which are modified or cured by emotions and impulses. Emotions and impulses are actually only automatic reactions to impressions which are often not even possible to discover. It is established that emotions cause specific changes in many of the body functions: the action of the heart and lungs, the tension of the blood vessels, the conduct of muscles and even tendons. In normal healthy bodies muscular tremors have been demonstrated by laboratory instruments, produced by arousing mental conditions such as curiosity, or fear, or anger. And it is common to find tendon reflexes modified by similar emotions, or even by ordinary excitement. And just such mental conditions are present as the cause of many abnormal physical conditions such as constant eyestrain, indigestion, insomnia, and even distinct diseases with muscle spasms and mental disturbances. And above all, the brain itself with all its nerves, is dominated by the same impressions from the world it lives in, and is molded like the softest clay.

Suppressions, conscious or unconscious, increase these abnormal conditions of tension, and we are constantly suppressing. And worst of all, we are thoughtlessly allowing abnormal and harmful influences to suppress the natural normal functions of our subconscious mind, and mislead us into complexes that are the causes of many diseased conditions.

It is possible to relieve these abnormal conditions by the simple expedient of securing a state of relaxation of the muscles of the body. Without muscular relaxation there never is mental relaxation. And when the muscles are relaxed mental relaxation is always present. There are different methods and varieties of technique by which this muscular relaxation may be secured. But they all must depend upon the same laws of psychology and physiology. It is necessary to enlist the cooperation of the subconscious mind. This can be accomplished by occupying the conscious mind so completely with some carefully chosen impression that the subconscious mind is also fully occupied with the same thought and purpose for a period of time. This method has been proved. It is scientific and successful. It requires, however, that the patient be receptive, earnest, and confident.

The story in this book is founded on these truths. Vision is the most precious of the senses which feed the life and the happiness of the human. That vision should be allowed to degenerate into a crippled dependent upon a mechanical device is an ominous threat to the future of the race. If the mind can be roused into a consciousness of its loss, the recovery of the natural power of the eye will be the smallest of the glorious achievements that will come with the new life.

It has been interesting to try to imagine the mighty spirits of the past contemplating the modern hosts that are helpless without their pieces of glass. How could those independent souls understand this new habit? How long will it be before the minds of children, who are beginning their lives, will be taught to use their own eyes, with the freedom and the power which belongs to them, and which will give them a new fullness of life?

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CHAPTER I

THE PROBLEM

WHEN the human eye begins to falter, whether in adults or in the youngest children, the conventional method of treatment is to call in the assistance of compensating lenses. The claim that is made for these lenses is that they neutralize the effects or symptoms of the conditions which are present as the cause of the failing function.

If it is necessary for men, women, and children who are wearing glasses to continue to wear them, let us hope they will all secure the best possible fit. But if it is possible to correct the fault that is interfering with normal vision, why do we not relieve the abnormal condition, instead of ignoring the eye, and using glass lenses instead? During hundreds of thousands of years the human eye developed into the most marvelous and the most necessary of the sense organs. Upon what grounds has it come to be an accepted belief that there is no possible way to cure an abnormal function in the mechanism of vision, even though abnormal functions and diseased conditions are being cured in every other part of the body?

There is a prevalent impression in the public mind that when any difficulty in seeing becomes apparent, there is no other help available but wearing of artificial lenses. This vague consciousness might be spoken of as a belief. But it is not a belief that is founded on any knowledge of the subject. The public mind knows very little of the factors or the mechanism of vision; it asks no questions, and it does not even consider the plain facts which are generally known. Just a little consideration of the many simple, established, obvious aspects of this most vital question arouses an astonishing reaction to a situation which is of national importance.

Whence comes this vast ignorance about the impending calamity to the power of vision? Why is the United States fast becoming a nation helpless in its daily life unless it has a pair of artificial lenses attached to its eyes? Why have the people come to believe this anomalous misinformation, as though it were the very truth?

Where there is a great cloud of smoke one knows there is a fire. This habit of wearing glasses, in this country of ours, out of all proportion greater and worse than in any other country, is growing like the size of a large ball of snow rolling down a hill. There are many factors at work in this strange development. But the chief factor is the activity of a vast modern sales organization, which is using all the devices of psychological salesmanship to persuade the population of the country that the only relief they can hope for, when their eyes begin to falter, is the life-long dependence upon artificial lenses. This propaganda even goes beyond that and warns now that those whose eyes are showing no signs of failure, should hurry and put on glasses anyhow—even though it is well known that eyes always grow more dependent after glasses are imposed on them, and they rarely ever relinquish them once they are attached.

But if it has been decided by the medical profession that this artificial aid is the only known method of relief, would it not be wise to consider the import of this final answer from the men upon whom we must rely for whatever help is to come in this most serious extremity?

If further search for relief is to cease, the situation is a promise certainly of the progressive degeneration of the human eye. That is the law. The glass lens will become the master of the lens in the eye. Just as the wearer is to become the property of the lens maker, so the eye is to become the slave of the glass lens. We are beginning already to see the warrant for such a statement in the rapidly increasing use of artificial lenses. In our own country this custom of wearing lenses is becoming a contagious habit. Furnishing the glasses has become a tremendous enterprise.

In the Great War it was found necessary to lower by half, the standards for vision required of soldiers. These standards were already well below those required for average normal vision. Having allowed for the use of lenses, the United States Army found it necessary to accept men with only one-fifth normal vision without lenses, if one eye could be brought up to one-half normal vision with glasses.

Some have estimated that of those in civilized life today over twenty-one years of age, only one in ten has normal sight. Personally I have met many, mostly children, however, who can read readily at fifteen or twenty feet the line required to be read at ten. At forty years of age there are very few without visual defects.

This problem of defective vision has been disturbing the medical profession for a century. In Germany the Imperial Government tried for years to stop the increase of the use of glasses. The effort failed completely. But in Germany today many are having success with their eyes, in an organized system of schools for the improvement of vision. In a translation into English of an article in a German medical magazine published in Leipzig, the principles upon which their work is founded are credited specifically to the discoveries of Dr. Bates.

As illustrations of their success, it is stated that a class of young men was received in the army who were nearsighted because their eyes had been habituated to functioning with work which demanded nearsighted vision. At first they could not adjust their eyes to distant objects. It very soon developed, however, that the danger involved by that so impressed their minds that their eyes learned to see what was necessary. A soldier was such a good marksman that he was detailed as a sharpshooter. This involved an examination of his eyes by a specialist, who fitted him with glasses. Wearing the glasses, his marksmanship became very poor, and he was dropped from the corps. He was taken charge of by a vision school, his glasses were removed, his skill returned, and be was reinstated as a sharpshooter.

England, also, now has the beginning of a similar movement, and gives notice of a School of Eyesight Training in London. It is taking up the work of Dr. Bates in a practical way, on the principles established by him. The children especially are to have the advantage of a training in the scientific and humane use and development of their eyes, instead of being afflicted and obstructed, in their early developing years, with a pair of artificial lenses as an endowment for life.

Commenting on the use of artificial lenses, an ophthalmologist recognized as an international authority, Dr. Sidler-Huguenin of Zurich, Switzerland, writing in 1916, expressed the opinion that lenses and all methods now at our command are of but little avail in preventing either the progress of the error of refraction, or the development of further complications. This commentary was given as the confirmed judgment of a specialist who, during a lifetime of private and clinical practice, was interested especially in finding an answer to the problem of the efficacy of lenses. He reported particularly that with one class of patients, connected with the educational institutions of Zurich, the methods that he prescribed failed to correct the faults in the functioning of their eyes, despite their earnest, faithful, and constant adherence to his instructions.

Those who find it necessary to seek the assistance of glasses seem to take it as a natural thing that their eyes should fail to function in the beginning of life. They rarely have interest enough in the calamity to ask why it happened. If they ask, they are generally told that the cause is what is called

eyestrain. No one seems to ask what eyestrain is. No cure is offered for it. So they put on glasses, and generally they seem to feel quite proud about it. It has become so fashionable! As a rule their eyes get weaker, of course, and sooner or later they get a stronger pair of glasses. In many cases the glasses are quite satisfactory, until the eyes get so much worse, and then it is a simple thing to buy another pair in the series of glasses they are going to need. But in many cases the eyes refuse to agree with the glasses, and there is a constant conflict. So what is there to do?

In a recent article describing the very fine course of training, mental and physical, which is given the Naval Academy students during their four years at Annapolis, it is reported that last year the honor man could not be commissioned to the line. He was rejected, after four years of perfect record, because his eyesight had failed slightly in his senior year.

There are those who write that human eyes have not sufficiently evolved, because nature did not intend they should, to meet the situations encountered in the ordinary life of today. If such preposterous assertions were true, consistently all of the naval cadets would suffer the same defeat as that honor man was impaled upon—just because there occurred a temporary faltering of his vision, due plainly to a continued physical and mental stress—which is not necessary. It is a fair question to ask why the eyes of that perfect specimen failed him. It is of vital importance to ask what, if any, deliberate attention is given, in that meticulous curriculum, to the mechanism and the care of the eyes of the cadets.

Dr. W. H. Bates of New York City, many years ago conceived an original idea. Why not cure the abnormal condition of the eye? Why not treat it as the medical profession treats an abnormal condition of any other part of the body? To find the cause and then to devise some means of relief involved research work which led him into fields never explored before. What he discovered will be explained. The system he originated will be described. By following his directions it is possible to correct the faltering function of the eye, and recover normal vision.

CHAPTER II

THE BACKGROUND

THE principles of this new method of treatment, which was discovered by Dr. Bates, are founded upon facts that are plainly in sight, but have heretofore been ignored. It is established that in most of those cases where artificial lenses are being used as a help to seeing, there is no change in the tissue structures of the eye itself. The fault, as diagnosed, is principally an abnormal functioning of the nerve and muscle mechanism. This is a condition quite common in the conduct of other functions of the human body. In every similar condition the expectation of the physician is to correct the fault and develop the normal function.

Nervous indigestion, a condition called nerve tire, the well-known unexplained insomnia, neuralgias for which no cause can be found, various habitual muscular twitchings, are all illustrations of conditions in which the abnormal conduct is owing primarily to some disturbance in the mechanism of the nerve control. Such abnormal functioning can generally be corrected. In many cases the only found cause of the abnormal nerve impulses is an abnormal functioning of the control center in the brain.

Psychologists and psychiatrists have been insisting for years that a large percentage of the above cases should be treated exclusively by mental suggestion. Reports are being made to scientific conventions of cures effected by mental treatment only, after reported failure to cure the given cases by the use of drugs. In what are called spontaneous cures, the patient reports symptoms have ceased, and the patient does not know, and the doctor does not know either, what caused the symptoms or why the disturbances ceased.

A young woman afflicted for years with irregular and distressing twitching of the arms and of the muscles of the face, uncured during some years of medical attention, stopped it all suddenly, and

stayed cured. There are many who stutter badly under certain conditions of nerve tension, and do not stutter at all when there is no mental stress. In the offices of nerve specialists are found many varieties of painful or disturbing dysfunction for which no cause can be discovered. It is generally believed by the medical profession that these conditions, classified and treated according to indications, are the results of some abnormal functioning of the centers in the brain which control every part of the mechanism of the human system.

The different kinds of disturbances of vision vary greatly in the degree of trouble that is present at different times. A woman who was deaf for years, and could not secure relief, was shocked mentally by her sensations in a falling airship, and during the emotion her hearing returned. A man who for many years could not manage at all without glasses, broke them while on a trip up in the mountains. He had no others with him, and he got along so well without them that he has never worn them again during the several years that have passed.

Failures in sight, and illusions in sight are so common, that an authority among ophthalmologists coined a phrase "seeing is deceiving." In a large percentage of cases of abnormal vision the principal fault is not a matter of physics or physiology, it is primarily psychology. That fact is really the foundation of the method of treatment originated by Dr. Bates.

A man of twenty years, who always found it impossible to see work or printed matter except at very close range, was permanently cured of the fault in one hour by this method of Dr. Bates. Encouraged by that success, his brother, two years older, presented his right eye, which had been blind from birth. He had consulted only an optometrist, years before, and had been told that the eye was undeveloped. Before treatment was begun I sent him to get the complete information from a medical specialist in the clinic of a large hospital. He was told there that his only chance was to cover the good eye whenever he could, and thus encourage the undeveloped eye to develop. He was told also that it would be two or three years before he might expect any improvement. Under treatment by the Bates method, however, in a few days he could read the upper lines on the Snellen Chart three feet away, and he continued to improve rapidly.

A young woman of twenty-two years reported that her brothers right eye had been crossed from earliest years; but that it was her left eye which had been crossed from her earliest recollection. About ten years before her visit to my office the strabismus (crossing of the eye) shifted, and the right eye turned outward while the left eye became straight. She had worn glasses for several years, and could not see her work in a large office without them. In two hours her right eye was perfectly straight, and has remained so for three years now; and she has never worn her glasses since. This was not a miracle. In the standard textbooks it is explained that crossed eyes may change spontaneously from one oblique direction to any different oblique position, or the strabismus may transfer itself spontaneously from one eye to the other, just as had happened to this patient while under my treatment for two hours.

A child of eight, thrown down by what is called a police dog, received as the immediate result of the mental shock a pair of crossed eyes. Most histories of crossed eyes originate as a consequence of an attack of measles or scarlet fever or some other acute or chronic disease. Since such a condition may come in an instant, may change spontaneously, often varies greatly, and in some cases disappears spontaneously, why should it be considered unreasonable to expect that the condition can be cured in the same manner that other conditions of the same nature are being cured?

The cases selected from my records are illuminating examples of the effects which can be secured in the treatment of abnormal conduct of the eye by developing an interested attention to the condition on the part of the mind. For years this has been the method used by medical men in the treatment of similar dysfunctions of other parts of the body. These selected cases of mine, and others just as remarkable, are in evidence today, and the given records are correct.

Eyes which develop noticeable abnormal function misbehave in many different ways. The misconduct of such eyes varies constantly in degree and even in kind. In many cases those eyes cease to act abnormally. Where glasses have been worn, they are discarded, and the conduct of the eyes continues to be quite satisfactory without them. In the majority of eyes an abnormal function continues. The

wearing of glasses never corrects the abnormal condition. When eyes recover normal sight, in any case, the change is produced through the internal mechanism controlling the eye. That eyes do recover normal function cannot be questioned. This certainly proves that such a power is inherent in the eye. It remains only to discover bow best to help those eyes which can regain their natural power.

In many cases it is quite practicable to teach a patient who is having trouble with eyesight how to correct the abnormal function and regain good normal vision. There are different techniques, or procedures, in the method originated by Dr. Bates. They are all very simple, and they are varied so that they are adaptable to every kind of condition, and temperament and opportunity. In this book all of these practices will be described so that it will be possible to learn definitely from the text how to carry them out.

These practices sometimes produce most gratifying results in a few minutes. But in other cases, even with the beat of intentions, progress is slow. It is not always possible to discover why a patient cannot secure the same success, even when the difficulty is less in degree. But whenever there is an earnestness of purpose, some proof of dormant power will come in flashes of normal vision. Words or letters will be seen vividly for an instant, and sink back again into the haze, as though a bright light had flashed, and then gone out. I have at times impressed the mind of a patient by bringing back the vividness that came and went, when I threw onto the letters the radiance of a 1 000-watt light, or took the patient to a spot where the strong sun shone directly on the page or the test card.

The game is worth the candle. Those who have worked the hardest are generally the best pleased with their success. The mind that has become adjusted to the impairment of vision that is more or less crippled or dependent, is satisfied, if not content. But those who have said "Now is the winter of our discontent turned into glorious summer," are the ones who have realized the happiness of having won back the pleasure by their own efforts.

CHAPTER III

THE CAUSE

SIGHT is the most precious of the senses. In the last ten years of my practice as a physician, during which I have been especially interested in patients with various defects of vision, I have come to realize that very few have any real consciousness of the situation. Most people are distinctly less conscious of the work of their eyes than they are of almost any other of the organs and functions of their bodies. An abnormal functioning of the stomach, causing more or less distress, attracts very prompt attention. The mere consciousness of the beating of the heart arouses immediate concern. But it is possible for their vision gradually to lose its power to a considerable degree before their inattentive observation remarks the failure of their eyes to discern objects with the same acuteness and ease that they formerly had. When they find themselves obliged to seek relief, they realize that the only help they know of is the use of artificial lenses for the remainder of their lives.

From sources which are not only most interesting, but are of the most vital importance, there has been developed and fostered in recent years a new and prevalent psychology. It does not relate primarily to the human eye. The eye itself seems to be like the "forgotten man." This psychology relates to the wearing of artificial lenses. The atmosphere is so pervaded with glasses, with new and changing styles of lenses and frames, that there is plenty of proof of the claims of a large corporation that it is rapidly making the people of the United States what it calls "eye conscious." The condition might certainly be better designated as eye unconscious. People seem to forget, for themselves and for their children, what it means to put on glasses for the remainder of life. They do not seem even to ask why no other help is possible, and do not seem to care. I have known those who have argued against the removal of plainly diseased tonsils, and even a diseased appendix, to use the slightest kind of a fault in vision as an excuse for joining the procession and appearing proudly with a pair of glasses.

My purpose here is to paint in plain words some pictures that are rather obscure to most of those whom doctors call the laity. Even those who do not wear glasses now, or those whose children are not

bespectacled yet, may do well to step out of the procession long enough to look at the prospect I am going to describe and ask themselves if they are interested.

Over forty years in the practice of general medicine have given me opportunity to observe the functioning of the organs of the human body, and likewise, opportunity to observe the conduct of the human mind in its relation to these organs. The fact that I was net, until recent years, engaged in treating the eye itself, has made it easier, perhaps, for me to record whatever impressions I gathered about eyes and vision without any prejudices. Moreover, the peculiar experiences I have had with my own eyes have prepared me for the reception of personal impressions with more open-mindedness than if I had never worn glasses. It has some significance, too, that I have now used my eyes for ten years without glasses after having worn them constantly for thirty-seven years. The experience I have had with my own eyes is a rather extreme illustration, but it is in kind quite similar to the common course of conduct that is the story of eyes which cause trouble because they do not behave in a normal manner.

My vision was quite good until I was twenty years old. The change came with a crash. A severe and remarkable mental shock introduced a long record of peculiar and variable as astigmatism. One summer day I dived into the Hudson River on the water-front of New York City. With a group of strong swimmers I joined in a race to an iron freighter and back. It was a quarter of a mile each way. On the way back my strength gave out and I fell behind. Soon I was alone, in forty feet of water, and unable to swim farther. I can remember, as though it were yesterday, the startling vividness of the picture of the brick barge I must get back to. It was as small as a hat and seemed miles away. The others saw my danger and came back to me. In their company my courage returned and my strength came back. That incident made such an unconscious impression on my inner mind that some hours later I suddenly found myself blind. Sometimes I could see nothing, and then there would be a film, and then it was dark again. In an hour my eyes were clear, but they were not normal. It became necessary for me to wear glasses constantly, and I continued to wear them for thirty-seven years.

My father was a physician, and the first eye specialist he took me to was very kind for some weeks, but my eyes were helped very little. I soon realized that my sight was quite variable. There was indistinctness, sometimes less, sometimes more, there was blurring, there was discomfort. The variableness was noticeable whether the glasses were on or off. We tried a second specialist, and finally a third. The last doctor fitted me with glasses that were much more satisfactory, and I wore them for three years before they had to be changed.

It was only after I learned the fundamental meaning of the discovery of Dr. Bates that I came to understand why those lenses suited my eyes so much better one time than they did another. It was so simple after all. The conduct of the eyes was varying constantly, but the pieces of glass never changed. My condition was diagnosed as astigmatism. That word has a bad case of astigmatism itself! The explanations are contradictory. We are told that it is incurable, but many cases of cures are on record, that recovered without any doctor's help. Apparently the cause of the trouble dissolves out of the picture. In some cases the condition varies constantly, and in others it disappears and probably sooner or later returns. I was told that my astigmatism was congenital; that I was born with it; but it came in an instant, and it was caused by the strange mental condition that I crashed into three hours before, when my eyes shocked my mind.

The experience with which my own years of astigmatism and nearsightedness was inaugurated is named in the textbooks a psychic amaurosis. That means a blindness in which there is no apparent change in the eye tissues. There is a similar condition called amblyopia, in which there is a dimness in any degree up to blindness. Either of these conditions may be temporary or permanent. Try to realize the significance of such conduct in an eye which shows no cause, in the eye itself, for the terrible calamity. The same conditions are found even when there is no apparent change any place in the body that might be a cause. Both of these conditions therefore, may come without any apparent cause. This means that certainly they must be caused by some condition in the mind; and that is why they are described as psychic. They often disappear as they came, without any warning and without any explanation except that their conduct is determined by the mind. Does this not make it plain that the simpler, common dysfunctions of the mechanism of vision are also caused by abnormal conditions in the visual center in the brain?

CHAPTER IV

THE PSYCHOLOGY OF SPECTACLES

A CUSTOM which evidently originated with the Chinese ages ago when nothing was known of the physiology or the intimate mechanism of the eye, has now grown into a sort of unwritten law. The new law is that no cure is possible for an eye with a faulty function. Such a law ignores the obvious truth that there are always cases in evidence of spontaneous cures of the different conditions for which artificial lenses are prescribed. Since eyes with faltering vision do recover normal function without any assistance, why should it be thought unreasonable to expect that other eyes in the same abnormal condition can be assisted successfully into a normal conduct?

When one wanders away from countries which are known as civilized, it is found that the great mass of the race is getting on very well without the help of the glass lenses of ancient China. Uncivilized people need their eyes. In the day and in the night good eyesight is necessary for the preservation of life. They have found no necessity for glasses.

Suppose we consider in a simple direct way, some of the plain and obvious factors in this vital and serious problem. Those of us who are older will have a better realization of the significance of the new conditions which have developed so rapidly. Many are remarking the large percentage of the population of our cities now wearing glasses. The same people remember that some years ago it was quite different. These people, because they are conscious of this feature of public life, are impressed with some of the special aspects of it. The number who are wearing glasses is growing with a rapidly increasing ratio. Like any new style or fad which pleases the popular fancy, the wearing of glasses is rapidly becoming a national habit. Healthy young persons who have fine natural vigor in every other way, suddenly realize that their eyes are helpless, and proceed to secure a pair of becoming spectacles.

Not so many years ago one felt like apologizing for such a confession. There is no thought of that now. The lifelong expense, and the hampering restrictions of glasses are commonly accepted as an unavoidable nuisance. But often, on the other hand, the opportunity to parade them is sought with an apparent eagerness. How far will this new habit lead the American public? What will be the consequences to the nation? Young people used to shrink from the taunt of "four-eyes." Now the only concern seems to be how to select the most ornamental and becoming spectacles that the budget can pay for. Why is this true, and what are the causes, or the influences, or the selfish purposes which are producing and developing this breaking down and degenerating of the priceless necessity of daily life—the power and reliability of the human eye?

What will be the penalty paid for the ultimate success of a program and a campaign which boasts in public print that it made everybody at the Chicago World Fair "eye conscious", and has established a nationwide campaign to make everyone in the United States "eye conscious"? What does "eye conscious" mean? When the organization with such a tremendous program and propaganda represents an industry with a gigantic plant for the manufacture and sale of artificial lenses, it is in evidence that people are to be made eye conscious so that they will protect their eyes from harm by buying the glasses which the organization makes.

In accordance with this ambitious project there is a vast network of commercial agencies and high pressure sales devices. There are more and more optometrists, and there are new and most attractive window displays of dainty frames for exquisite new lenses for which wonderful mechanical improvements are claimed. There is a new line of engraved mottoes in which the public is told that the storekeeper is a vision scientist. Again it is explained that the eye is a work of extreme complexity, and the optometrist must have a complete understanding of its functions and its deficiencies. But he, and you, we are told, must depend upon lenses to carry out precisely the correction that is necessary. There are even gaudy lithographs of eye specialists long dead, who are on dress parade, and are supposed to add their benediction to the purchases.

There are other gorgeously colored pictures with quaintly typed explanations under them telling that in China, five hundred years before the Christian Era, the wise men of that country wore spectacles, and in

the picture they have imaginary spectacles on, remarkably like the ones worn here until the new style of the last few years began the series of changes, which now are just like the changes in the style of hats. Again we are shown the fops and "socialites" of Europe, overdressed just as the Mandarins are in the Chinese pictures, with showy spectacles on their faces. There is again an explanatory text. It tells us that from the fourteenth to the seventeenth century many wore spectacles for adornment, as it is written, and as an aid to vision. Are the coming generations of the United States to wear spectacles for adornment because it was a fall some centuries ago, and so wreck their own eyes for life? Are the defective eyes of today to be treated only with glass lenses because no other help was known in what has been called the dark ages?

But in all this the eye itself is absolutely ignored as a living, vital end organ of a human being. It is treated like a hopeless wreck that cannot do its own work, and can never function again except under the orders of a piece of ground glass. The only light rays it is to receive are to be the ones refracted through the precise correction determined by a vision scientist. In medical literature there is constant reference made to lenses that are not correctly fitted. In those cases the eye must labor constantly against an obstruction which never changes. There are many things to say against this system which offers no relief to an eye in distress except the crutch which is called an artificial lens. But there is always one stern challenge to this system. The lenses must be changed again and again, made stronger, we are told, because the eyes are growing weaker. These propagandists warn the public to remember that their eyes are their most precious possession, and plead with them to take good care of them. No doubt they are positive that there is no other care to be given for a faltering eye function except a pair of spectacles.

If there were no known remedy for the relief or cure of defects of vision, one might simply find amusement in the frantic concern which is exhibited by vendors of glass lenses. One might feel that it was really a kindness to spend enormous sums of money in advertising to millions who are unconscious of any difficulty with their vision, the danger of not having their eyes examined so that they will be sure to save them! One might still wonder what is in the minds of campaigners who are determined to make everyone in the United States eye conscious. There are many millions who can see better with their unaided eyes than most of the spectacle wearers with their glasses on. Since the wearing of glasses generally makes the eye progressively more helpless without them, where is the danger of waiting until they are needed? The artificial lenses certainly do not prevent the eyes from growing poorer and poorer in function. The wearers are told that they must buy stronger glasses because their eyes are growing weaker. Suppose we stipulate, as the attorneys say, that the campaign is prompted by the belief that all those who are not wearing glasses are in danger of losing their vision. Let us then, on the other hand, consider the possible effect on the public mind of this vast and intimate network of subtle advertising by window displays and magazine articles and radio broadcasts.

None will question that the millions which have been spent advertising cigarettes, for instance, have been repaid through the psychological effect of the beautiful lithographs. In other words, "it pays to advertise." And also, perhaps, the end justifies the means. But how many are there who will deny that millions of eyes have been fitted with glasses, that could have functioned without them if the owners had not been persuaded that they had better get eye conscious and save their vision from future calamity?

In this field two incidents, quite recent, are most remarkable. In the public press there was a notice of a reported patent, secured for a machine which is to measure the degree of inferiority of an eye in its relation to ordinary sunlight. It is to tell just how defective the given eye is in contact with its best friend, the light of day. The number on the scale which is registered by the new machine will tell the salesman what specific color the particular eye is to wear when it goes out in the daylight, where the rest of the race walk up and down on the earth unconscious of the enemy, the sun. With the colored glasses on, everything the inferior eye looks at will be of the same color, blue, or smoky, or orange, or whatever shade the salesman decides on. As the glasses now are made stronger, probably the glasses of the future will change color each time the eyes go to the store, and the world will change from straw color to blue or mauve. What the brain will be thinking of, and how it will be embarrassed, as it deciphers out the deception—well, that surely takes us into the domain of the psychologist.

The second incident is certainly food for thought. Instead of wearing glasses in front of the eye, it is proposed, as a kindness to a crippled eye, that the artificial lens be fastened to the eyeball, held by suction, between the eye and the eyelid. What an inspiration I Even the crudest conception of the eye itself must surely be impressed by the possibilities involved in such an intimate contact of an enveloping foreign substance clinging constantly to the sensitive covering of the eyeball.

The coating of the eye is kept constantly moist as well as clean by a suitable fluid secreted, and this fluid is spread carefully over the surface of the eye every time the eyelids close automatically, as they wink all day long. Just what interference with that provided protection would be accomplished by such a remarkable paraphernalia, only experience can reveal. Deprived of its necessary lubrication, a dry eye is a troubled eye. Tiny particles of dust captured between the sensitive covering of the eye and its new underwear might possibly arouse new ideas. Such an unceasing suction on that sensitive membrane might develop complications on the surface which would demand attention. But the deeper effects might be more important. It is established beyond question that the most trivial irritations, even in distant parts of the body, may cause a considerable disturbance in the conduct of the refraction of the eye and of the vision centers. What should one reasonably expect from such a constant impression, made by an unceasing interference with the natural conduct of the eye? It is hard enough for one to try to imagine carrying all the time a piece of foreign tissue stuck to the eyeball so tight that the lens built into it would always match perfectly the margins, and the movements of the lens of the eye. How could the best qualified specialist estimate the serious secondary conditions that almost certainly would complicate such an interference with the mechanism which has been evolved during eons of time by the development of the human eye?

Nothwithstanding, however, that the discovery is not generally known, it has now been established for many years that the eye is not different from every other part or function in the human body. It is not a hopeless and helpless wreck just because its marvelous mechanism has faltered in its function. The eye is quite near to the brain which controls it. It is quite responsive to the correcting influence of the vision center in the brain. It is so accessible to conscious effort on the part of an interested attention, that it is easier to constrain the misbehaving eye to act in a normal manner than it is to correct abnormal function in almost every other organ or sense organ in the body.

Whatever may be the belief of those who have glasses to sell; or whatever may be the individual attitude toward the question of wearing or not wearing spectacles, there still remains a problem which has a most vital public interest. Those who are concerned in the future of the United States will do well to analyze the situation. Every thoughtful American should consider the promise there is in this avowed purpose to make every citizen of his country helpless without a pair of artificial lenses on his face. It is certain that the longer glasses are worn the more helpless the wearer becomes if he is obliged to see without them. The vast number who are already in that condition is not so serious a question as is the fact that in recent years this number has been increasing at a rate which multiplies itself each year.

The strange and ironical and dangerous aspect of this subject which has a tremendous national interest, is that if and when the eye is taught to be itself, the salvation of the eye will involve an interference with the merciless greed of commercialism.

CHAPTER V

TO BE OR NOT TO BE

IN THIS chapter I shall undertake, in a simple and deliberate manner, to consider an abstract question. The question is whether an endeavor should be made to recuperate the faltering eye and use it, or whether the eye itself should continue to be neglected, more and more each succeeding generation, and be denied the help which is being given to every other part and function of the body. I ask the reader to lay aside all personal feeling, and follow, without any prejudice or any mental reservation, the lines of thought presented.

In the standard textbooks we are told that sight is a psychic function. In other words, it is in the brain that we actually see, lust as it is in the brain that we feel, and hear, and taste and smell. Marvelous as it

is in itself, the eye is only an end organ, a receptor. It receives and transmits a physical force to a nerve which carries that force like an electric current up to a special receiving center in the brain.

If we are to have some practical understanding of the issues which are involved in this controversy, it is necessary that we have some knowledge of certain facts, which are being ignored entirely, and are realized by very few of those whose vital interests are at stake. We will need to learn something of the known mechanism of the human eye. Even a normal eye varies constantly in its efficiency, and an abnormal eye varies considerably. We must remember that radical changes take place in its conduct, even extreme discrepancies in an abnormal eye, when no least change is found in the tissue of the eye itself.

In the past few decades the record of the work of the medical profession has been the story of a new science and art, entirely different from the old methods of treatment. In the centuries of the past, medicine developed like every other science. Now and again a genius arose out of the ranks that moved slowly along-when they did not remain stationary for a lifetime. These men of vision generally battled with the rest of the army while they lived, because the minds of their colleagues continued to function with the fixed habits which were their mental life. That was the experience of Harvey when he insisted that the blood vessels contained blood, and not air. When Lister offered his theory that infected wounds were caused by bacteria, not even the proof he offered, made any impression on the fixed beliefs of the surgeons with whom he was working. Notwithstanding the fact that their own explanations were negative and empty, they refused to consider his. He cut the infections in his own surgical wards from seventy to seven; but for a long time the only recognition he received was ridicule. Pasteur was not even a doctor of medicine, and so the discoveries he made, instead of being received with reverence, were met with bitter, vicious persecution.

But the practice of medicine is guided now by different principles and different men. New discoveries are frequent, and methods are improving constantly. There are many evidences of this. 'Me legions of death, that moved silently and without any opposition for so long, are now seen and met and conquered. The plagues of the past are guarded against successfully. Cancer killed many in every thousand; its victims are daily numbering less and less. Tuberculosis was a universal scourge, but the ninety per cent of infections in childhood are now a thing of the past. Malaria and typhoid fever now are generally not cured, they are prevented. The early deaths of infants are provided against and increasingly they do not occur. The cause of all these changes can be explained by what the doctors call preventive medicine.

The causes of tuberculosis were searched for and found. Then a defense was organized. The children were protected, and their natural defenses were strengthened. The enemy in cancer is still unseen, but so much has been discovered about his plan of attack, that he is met with a new resistance, and the number of his victories grows smaller by degrees and beautifully less. The mosquitoes of malaria, which were caught in their acts, are killed now in advance of danger. The drainage which carried the typhoid poisoner into the water and into the milk, is prevented now from polluting the liquids that used to carry death. In short, instead of only trying to cure the body which has been attacked, the doctor begins now by meeting the enemy as he comes on. The doctor has learned that the best defensive is an offensive. That is true of the whole field of medicine, except in the care of the precious sense of sight. No effort is being made to prevent the deterioration of the human eye. No effort is being made to find out why it is failing. No effort is being made to cure it. The situation today is just where it was twenty years ago when Dr. Sidler-Huguenin, an acknowledged international authority in this field, wrote that: "Glasses and all methods now at our command are of but little avail in preventing either the progress of the error of refraction, or the development of the very serious complications with which it is often associated."

What is the answer to the conclusion of Dr. Sidler-Huguenin? Is there no answer? The answer is here. The answer has been here. The answer is scientific. The answer was given by a physician who was a genius ranking with the leaders in other fields of medicine. The answer was proved during many years. The answer can be proved now by any who care to repeat the scientific investigation of Dr. Bates, or to test the results by using his method in cases of faltering eyesight. Notwithstanding all these truths, the human eye today seems to be treated like a commodity for barter and sale.

Since artificial lenses are ground to correct an exact degree of refractive error, it is necessary for the eye to produce constantly that exact degree of error in order to see clearly with the glass lenses in front of the eye. But no degree of refractive error in an eye is constantly present. The abnormal conduct of the eye is a fault which varies in degree. Many who wear glasses report that they find more or less difficulty with them, even after they "get used to them." Those who find their eyes adjusted for a period, are obliged to change the lenses because they have gradually become a hindrance in stead of a help. It has been demonstrated by many who wear glasses that if they make a test by laying their spectacles aside for an hour, or a longer period, their sight improves, and they can see better without the glasses an hour after removing them than they see when they first take them off.

It is true that a great many who are wearing glasses would not be interested in trying to get along without them. As long as there is either difficulty or discomfort without them, and there is relief while wearing them, their answer will be "spectacles"—and that is their own affair. There are others who would like to be freed from dependence upon spectacles, but would not care to take the trouble, or are afraid the effort would end in failure.

In this short chapter we are not concerned with those. But many of them would still be interested in the question under consideration. They would be glad to know that thousands who are not wearing glasses yet, but are going to wear them, need not put them on. They would be interested, if they could realize it, to know that it is more possible to be saved from weak and unhappy eyes than it is to be saved from other damaging weaknesses which are now anticipated and prevented. The finest, spiritual interest they can have in this vital problem is an enthusiastic desire for the correction of a serious mistake, and the elimination of a menace which involves millions of humans, and endangers the welfare of this country.

"To Be or Not To Be", in this chapter, means just what Shakespeare, not Hamlet, said it always means:

To be, or not to be, that is the question.
Whether 'tis nobler in the mind to suffer
The slings and arrows of outrageous fortune;
Or to take arms against a sea of troubles,
And, by opposing, end them?

The slings and arrows of an outrageous fortune, in this discussion, are artificial lenses—the most domineering and dominating impediments to personal freedom that this particular land of the free is being subjected to in this generation.

Whatever we automatically decide to do about our own lenses, and whatever indifference we may feel about what the remainder of the adults are doing, have we not, every one of us, a battling interest in the sea of troubles that is being launched upon the children, in this deluge of spectacles with which they are being overwhelmed? Do we not want to know whether or not it is possible to give them back their own eyes, free and strong and independent? If it is possible, and that is being proved every day, do we not want to know why the eyes of the children are being denied what every other faculty and function of their minds and bodies are being given—the care and education which is their right?

CHAPTER VI

THE PHYSIOLOGY OF THE EYE

ORDINARILY we think of the eye in very simple terms. We realize a difficulty in seeing things, and we ask ourselves what we must do. The only remedy offered is to get what help we can from a pair of glasses. Very few ask any further questions. If they have heard of the Bates method, and inquire about it, they are informed, in a regular stock phrase that: "Dr. Bates has been discredited." There is a growing rebellion against that reply, which is not an answer. But only a few have access to the answer that is found in the success of those who have carried out the techniques of that method.

In a book by a psychologist of high standing it is pointed out and proved that physicians do not any longer try to make the distinctions that used to be made between organic and functional diseases. Conditions that were thought to be caused by a change in tissue structure, are now known to be caused by a fault in function, consequent upon improper nerve impulses, prompted by a disordered mechanism in the central control.

A famous biologist, in a recent book, writes that the illusions of the mechanists, and the childish physico-chemical conceptions of the human being, in which so many physiologists and physicians still believe, must be definitely abandoned. That the mind, hidden within the living matter, is completely neglected by physiologists, and almost unnoticed by physicians.

The use of spectacles is often a necessity. But a claim that such a mechanical device has any value as a correcting influence upon the mechanism of vision is surely the theory of a mechanist. There is no claim made that the glass lenses have any influence upon the abnormal conduct of the visual center. The only claim is that they help some to see by using the glass lens instead of using the lens of the eye.

Everyone knows that there is a constant mental activity which is outside the circle of our awareness. This storehouse of endowment and life-long development is the power-house which impels every function of life. It provides the energy for conscious thought and conscious action, and dominates every vital process of the body. The mechanism of vision is part of its dominion. The muscles which change the shape of the eyeball, and the nerves which carry the force sent in by radiant energy, and the impressions which are made upon the brain cells of the visual center, comprise the mechanism of vision. The mind interprets images. The mind includes memory, experience, judgment, imagination. All of these are involved, and are vitally active, and upon them depend the power of vision, and the truth of the impressions and the conceptions of which we are conscious by reason of the images that the eyes receive.

A well known professor of psychology carried out a most ingenious experiment which has a direct bearing on the subject matter of this chapter. His remarkable demonstration illustrates how much of the function of vision is carried out by that part of the brain which is called the visual center. It shows also, very clearly, the complexity of the question of the value of artificial lenses. It explains how they frequently hinder the effort to see instead of helping the difficulty.

The picture thrown upon the retina of the eye is always reversed perpendicularly and laterally. In order to realize the significance of this statement, it must be remembered that the light rays reflected from the upper part of the object looked at slant downward so that they are delivered onto the lower part of the retina, which is the receiving film of the eye; and the light reflected from the lower part of the object is likewise delivered onto the upper part of the retina. Objects on the right side would be represented as on the left, and vice versa. This is partially realized by looking into a mirror.

It is easy enough to imagine the disturbance and confusion which would be caused by such a complicated misrepresentation of everything, in the complete reversal of the positions of every object seen. But the human visual receiving apparatus corrects this perfectly. In what manner that wonderful transformation is accomplished, the mind of man has not learned how to explain.

This professor of psychology prepared a pair of glass lenses which so refracted the light rays that the image was already inverted before it reached the lens of the eye. The lens of the eye refracted the rays received just as it had always done. This had the effect of delivering the image onto the retina right side up, and laterally also without being inverted. As a result, all objects at first were seen by the mind inverted perpendicularly and laterally. This was because the habit of the mechanism of vision treated the seen objects in the accustomed automatic manner, and re-inverted the images received. Wearing the deceptive lenses all day, the eyes were covered at night. The wearer at first had a unique experience. He would collide, for instance, with objects which seemed to be on the right, but were on the left. Hut in the course of a week a new mechanism of adjustment had been built up, by changing, somehow, the various reactions of the brain cells in the visual center. Then things seen were again presented as they had been before, despite the complete reversal still presented by the glass lenses.

This necessitated some new functioning of the different parts of the complex higher visual mechanism. Something was done which the brain and the mind had never done before. Something of a nature essentially different from the mere physics or optics of lenses—glass or flesh. The brain, might we Say, working for the mind, met the emergency as just another one of the discrepancies which are constantly being imposed upon our different organs, and generally compensated with success.

When the brain—or shall we say, the subconscious mind had fully accomplished the necessary readjustment, and images were again habitually seen correctly, the trick lenses were re moved. The mechanism of vision continued for a time to follow the newly devised method or system, and things were again in confusion. This time however, the new condition lasted only a few hours. The old, natural habits promptly dismissed the strange interlude, and went to work again in the inherent, accustomed way.

Suppose we consider for a moment, deliberately, something of the plain import of this most ingenious experiment. It has taken us up into the higher, more vital functioning of the mechanism of vision. But it has also made plain some most important direct considerations. When rays of light fall upon the retina, they produce chemical changes which alter what is called radiant energy into some different form of energy, some different kind of nerve stimulus. It is this new force which acts upon the brain cells. When a person is nearsighted—so-called—all light rays do not fall exactly upon the retina, because the eyeball is too long, and the rays reflected from farther objects meet too soon. In a far-sighted person it is just the opposite. The eyeball is too short, and rays focus behind the retina, which acts like a film. When the eye is impaired with astigmatism, the eyeball is more or less out of shape, instead of being a perfect sphere, and that influences in an abnormal manner the direction of the different rays of light. This is the explanation given in the text books.

Now, in the experiment just described, the rays of light received upon-the given retina were not imperfectly focused; they had been so completely changed in their directions that the image received was exactly reversed in detail from what should have been received, and always had been received as a picture of a given object. That part of the mechanism of vision which is beyond the retina interpreted, deciphered, corrected the deception, and acquired the necessary visional information in such manner that the impressions were the same as if the lenses described had not been used at all.

This experiment demonstrated, therefore, that the subconscious mind can accommodate itself perfectly to an experience not only strange, but actually a misrepresentation, compared to the manner in which the information had hitherto been presented.

The pair of eyes used for this demonstration by a famous psychologist were governed by a visual center in the brain which was working normally. Aroused to an alert attention by such a remarkable challenge, the mentality of the subject rallied its trained resources of memory and imagination, and judgment, and learned the answer. The mind knew that things were not upside down. In that experiment the mind knew that the false lenses caused the trouble. It was the mind that taught the mechanism of vision how to change its habit of the ages. The mind ordered that mechanism not to re-invert the strange images received on the retina. The unconscious part of the mind knew how that function was performed, although the conscious part of the mind did not. It was the unconscious part of the mind that accomplished the victory over the false lenses. This was possible because the conscious mind was aware of the interference and willed to overcome it.

That wonderful demonstration is surely worth some consideration on the part of those who offer lenses as the only possible relief for eyes that are troubled with some slight abnormal function on the part of the same mechanism. A doctor who had worn glasses for years on account of astigmatism, asked if I really claimed that the Bates method would cure astigmatism. I am sure he did not accept my explanation, because it did not agree with his own ideas. The explanation will be given fully later. I wondered what he might have said about the report of this psychologist, who has a high standing in this field. I did not ask him, however. I did not think it worth while.

A young man of twenty who had been troubled from early life by a peculiar astigmatism was freed from it in an hour by the Bates method. He could not fuse a single one of the stereoscopic pictures when we

began treatment, but he fused all of them before we stopped. The simple technique employed involved the same attentive co-operation of the vision center as was aroused in the experimental case cited above. The stage was set, however, by what I regard as an attitude of mind. His mind had been deeply impressed before he met me, by a close friend of his who had personal knowledge of cures effected by the Bates method. He had no mental reservations, and his mind responded promptly to the suggestions offered in practice during the hour.

Astigmatism is a most interesting subject. We are told that it may be hereditary or acquired. The elaborate explanations regarding its infinity of varieties, its development, its changes in conduct, the different factors which may be involved and so forth, are all very confusing, and are largely theoretical. The array of plain facts, meaning the actual experiences of those who have had it for years, are often contradictory to the imagination and the hypotheses of those who claim that the condition is not curable, and can be helped only by the use of glass lenses.

My own experience is not unusual. During thirty-seven years there was often an extreme variation in the conduct of my eyes. For months they would behave very well. Sometimes they would tire easily, become more nearsighted, receive blurred images. Those periods might last an hour or several days. Occasionally there were brief periods during which I would have astonishing optical illusions. More than once an automobile would appear to be coming toward me on my own side, although I was sure it was not. I have seen distorted images of persons and things, sections of objects missing, impossible motions. These were not delusions or hallucinations. I was perfectly aware that they were misrepresentations. The glass lenses, usually helpful, had no influence over these distortions.

One aspect is certain, and vital in relation to the treatment of such a condition. Many of the illusions were not caused by errors of refraction, and were not influenced by the artificial lenses I was wearing. The fault was in the conduct of the visual center. The treatment, therefore, must influence the mentality of the patient, and not merely modify the refraction of light rays. In my own case the proof of this is the absence of those symptoms since I have used the Bates method. There is nothing uncommon in such experiences. Witnesses on the stand, students in psychological tests, report similar aberrations of vision-and not alone those wearing glasses. In auto accidents a driver with a perfect record has declared that he simply did not see the other car, although it was right in front of him. It will not be questioned that a mental shock momentarily disturbs seriously the ordinary vision, producing the same results as are found in the condition called astigmatism. We are told in the text books that astigmatism is a common defect. But the explanations offered as causes do not begin to account for the symptoms that are in evidence. Its performances, including its frequent disappearance, temporarily or permanently, can be fully accounted for only when we consider it psychologically. The same explanation applies to most of the functional disturbances complained of by those who seek artificial lenses.

The muscular element in the mechanism of vision is certainly dominated by the nerve center. Modern medicine knows that even where changes have occurred which seem to be permanent, and where symptoms seem to indicate some change in tissue structure, the abnormal condition will sometimes revert to normal. It is a simple thing for nerve controlled muscles to cease acting in an abnormal manner when an abnormal nerve impulse is changed into a normal nerve impulse. The reactions in the nerve headquarters of the eye, the visual center, are still very much of a mystery. When they act normally, perceptions are coherent. Sometimes visual perceptions are quite incoherent. To see an object or a picture which is not present is an illusion, and is due to misconduct in the visual center, and is not to be blamed on the eye. The common, trivial illusions, with which all are familiar, are caused by some degree of dysfunction in the visual center.

When a picture becomes blurred it is probably simply an improper nerve impulse, compelling the muscles to change the shape of the eyeball, so the light rays cannot focus clearly on the retina. When the eye suddenly becomes nearsighted, or a constant nearsightedness becomes more marked or less marked for a period, the changes are caused by a different nerve impulse. When an eye crossed in one direction spontaneously changes the direction of the squint, or the squint leaves one eye and appears in the other, it cannot be denied that the muscles which held it one way have allowed a change in muscle conduct to hold it in a different way, and certainly those muscles obeyed a new nerve impulse.

All of these specific changes are in evidence, and are to be found recorded in the text books. Every one of them is either a nerve center process, or a nerve current from the center, or a muscle taking an order from a nerve. Is it not clear therefore, and absolute, that to correct these faults it is necessary to arouse the attention, and influence the conduct of the master mind in control, which is the visual center? The proof of this theory, or claim, is its success in operation, which is now a story forty years old.

The fascinating interest of these plain established facts is not simply academic. It is strange, surely, that in all the work, and all the knowledge of the specialists, this simple truth has been ignored. It is more remarkable, that in all the wonderings of the psychologists, and the experiments of the psychiatrists, this field has been neglected. What was in the mind of the psychologist who proved with his trick lenses how infinitely more the visual center can accomplish than is required by the simple effort to cure automatically as astigmatic eye? Would he say that an eye troubled with astigmatism must be resigned to the domination of a pair of glasses? The biologist who has described the intimate physiology and psychology of the body with a vividness never pictured before, puts on his glasses or lays them aside, as he talks, very much like the man with the monocle. He accepts without question the arbitrary, unfounded statements about the eyes, that have been current since first they were proposed. Some day it may occur to him to research the physiology and the psychology of the eye. It is a rich field, and of vital and practical and immediate importance to the race.

CHAPTER VII

THE EYE ITSELF

MY EXPERIENCE has been that the average person has very little interest in a technical and detailed description of the anatomy and physiology of all the parts of the mechanism of the sense of sight.

Everyone knows that the eye is round. Not many have inquired much further. Some could tell us that the round eye lies cushioned in soft tissue which lines the cave-like round hollows of bone that carry the eyes, right under the floor of the skull, which contains the brain. Some know that there are six muscles attached to the outside covering of the eye. At one end they are attached to the edge of the round hole in the rear of the cavity through which the optic nerve passes on its way back to the brain. Four muscles pass forward and are imbedded in the outer walls of the eye, near the front: one on top, one on the bottom, and one on each side. The other two are attached to the side-walls of the cavity, and are wrapped around the middle of the eye like belts, one passing over, and the other passing under the eye.

The four muscles called the recti, passing forward on all four aspects of the walls, serve to move the eye in different directions. Working in harmony they change the position of the eye in the socket, and point it, unconsciously, wherever the owner wants to look. When they all contract equally, it is possible for them to change the shape of the eye and make it flatter on each end—that is, make the distance shorter between the front and the rear walls than it properly should be. Such an abnormal condition is present when an eye is what is called farsighted. The two so-called oblique muscles serve to compress the eye in the middle, and flatten it there, so that it becomes longer horizontally. In this condition the distance is longer between the front and the rear walls of the eye. Such a longer focal distance is necessary when the eye is focused upon nearby objects.

The inside of the eye is divided into two compartments. Immediately behind the anterior wall of the eye is a small chamber, filled with a thin fluid which separates the front of the eye from the lens. The lens is fastened to the inner walls of the eye by a ribbon-like circular band of tendon. Behind the lens, filling the remainder of the eyeball, is a different liquid which resembles a jelly in consistency. The spherical shape of the eye is sustained by the pressure outward of the fluids with which it is filled. The crystalline lens consists of an elastic capsule holding in an oval shape its fluid-like contents.

The walls of the eye are opaque, and light can enter only through the transparent lens in the middle of the front wall. The colored circle just inside the front of the eye is called the iris, and the opening in the center of that circle is called the pupil. This opening constantly varies in diameter. It is furnished with a diaphragm, of which the diaphragm in a camera is something of an imitation. Its function is to control

the amount of light which is permitted to enter through the lens. In a poor light it enlarges, and in a strong light it contracts. The outer walls of the eye are composed of a dense, firm tissue, with a lining of opaque pigment, and contain vessels which supply the nutriment required. The inner membrane, lining the eyeball, is called the retina. This membrane, although it is thinner than the finest paper, consists of ten distinct layers. In its surface are spread out the nerve terminations, which are the microscopic endings of the nerves that receive and carry the impressions made upon the surface of the retina by the rays of light. We have some understanding of this when we remember the film in a camera, which also is acted upon, although in a very different way, by rays of light.

The terminations of the nerve tendrils in the retina are of two kinds. They are distinguished as rods and cones, and there is some difference in their exact functions. The most sensitive part of the retina is a small area at the very hack of the eye in the center, which is called the macula. Here form and color and very sharp definition are registered. In this area there are no rods, which are nerve endings plainer and less highly specialized than the cones. Beyond this spot cones and rods mingle, but toward the front edges of the retina no cones are found. The rods seem to be more sensitive to the presence of simple light than are the cones.

When light rays contact the surface of the retina a chemical transformation takes place. The force called radiant energy is changed into another form of energy. This new force is carried by the nerve fibres which terminate in the cones and rods, back through the collection of fibres called the optic nerve. In order that light rays coming into either eye, from right or from left, may be registered harmoniously, there is a switch in the course of the optic nerves from both eyes. This switch is called the optic commissure. The optic nerve of each side continues on until it ultimately reaches an area in the brain called the visual center, where the fibrils composing the cord are distributed to cells of the brain. This is the beginning of the mechanism of sight: the comparatively simple reception and absorption and assimilation of those rays of light which are reflected from external objects and come into contact with the retina.

Vision is classified as a psychic function. The eye does not see. It is the brain that sees. The force or energy which courses up through the optic nerves to the vision center in the brain creates a transformation in those brain cells. Just how those impressions are registered so that they become conscious conceptions, has not yet been discovered. The process is a brain function, and part of the mind. Previous similar impressions upon brain cells make it possible for a harmonious co-operation of memories to interpret the newly registered images. This involves memory, imagination, and every element of the intellect.

Does not this brief description impress the tremendous significance of the prevailing custom of neglecting all this marvelous mechanism? The electric light companies, aroused to their own neglect of an opportunity to sell light, are beginning to give the eye light it has been deprived of, and that help is being gladly received. This however is simply physics. The mechanism of vision quickly leaves the field of organic chemistry, passes from the retina to the optic nerve, on to the cells of the brain, and into the realm of memory and mentality. There, in the higher field of the mind, is waiting the problem which the physician, who is interested in the rapidly failing function of human vision, must solve.

CHAPTER VIII

ACCOMMODATION

WHEN the word "accommodation" is used by an eye specialist he means by it the changes which take place in the eye when it is focusing. That is, the eye is accommodating itself to the distance of the object at which it is looking. Just what muscular changes occur in the eye during the act of accommodation has been a subject of most fascinating interest for centuries. There have been different theories as to how this is accomplished. Some supposed a change in the position of the lens. Another theory was that the eyeball was lengthened. That idea would imply that a change had been made in the horizontal inside length of the eye. Such a change would increase the distance between the lens and the most sensitive part of the retina, at the rear of the eyeball. A change in the horizontal length of the eyeball could be accomplished only by the external muscle of the eye. Some believed accommodation

was accomplished by the contraction of the pupil. There were those who discarded all of these theories, claiming that no change of focus took place.

In 1614 a theory was advanced that a change of focus could be brought about by a change in the shape of the lens, but it was more than a century later before any investigation was begun to find some support for that supposition. The only investigations made were efforts to prove that an image of the flame of a candle seen on the front surface of the lens became smaller when the eye was accommodating. Since an image reflected from a convex surface becomes smaller in proportion to the increased convexity of the surface, if the image on the lens surface really did become smaller, it would imply that the surface of the lens did increase its convexity during accommodation.

Although it was, never proved that the image did get smaller, this theory gradually came to be accepted in a general way as the solution of the problem. The man whose statements are offered as the most plausible support for this claim was Dr. Helmholtz, who died in 1894. But Dr. Helmholtz never did make a positive assertion to that effect. He said, as did others who favored this theory, that they found the said tiny image usually so blurred that the form of the flame could not be definitely distinguished. Different expedients were adopted to assist the human eye in clearing up that obscure picture of the tiny image on the lens, but they all depended on the perception of the observing human eye. Dr. Helmholtz stated that he found nothing but the ciliary muscle to which he believed accommodation could be attributed. This tiny muscle has already been described. He, therefore, concluded that the changes which it seemed to him occurred in the curvature of the lens must be effected by the action of this muscle. He stated explicitly that his suggestion possessed only the character of probability. He offered no single established fact to support his guess. He simply ignored the only other possible factor in the eye which could accomplish accommodation, namely: the external muscles of the eye.

The theory that accommodation is accomplished entirely by an increase in the convexity of the anterior surface of the lens is supported only by the claim that an image reflected on the surface of the lens seemed to become smaller when the eye is accommodating. Dr. Bates refused to accept this theory, and undertook to make a real test of the truth of it.

To appreciate the significance of the factors in the problem it is necessary to remember what the actual question is. Rays passing through the lens are refracted. Shorter rays reflected from objects close to the eye, must either be bent in a more abrupt refraction, or must have a long enough focal distance from the front of the lens before they reach the retina, if they are to come to a focal point on the retina. Suppose that the lens be removed, and it is found that even in its absence the eye can accommodate. Would that not seem to prove that a change in the convexity of the lens is not the factor which determines the accommodating power of the eye?

It is established, in the experience of practicing eye specialists, that frequently when the lens has been removed surgically, as a relief from cataract, the eye learns to accommodate without its lens. Corroborating proof of the truth of that statement is found in the records of the medical profession. Over a century ago a number of such cases were reported to the British Ophthalmological Society. In 1892 Prof. Forster of Breslau reported a series of twenty-two cases of apparent accommodation in eyes from which the lens had been removed surgically on account of cataracts. The subjects ranged in age from eleven to seventy-four years, and the younger ones had more accommodative power than the older ones. A year later Wainow of Moscow reported eleven similar cases, the subjects being from twelve to sixty years of age. In 1869 and 1870 respectively, Loring reported to the New York Ophthalmological Society and the American Ophthalmological Society the case of a young woman whose lens had been removed, and who, without any change in her glasses, read the twenty-foot line on the Snellen Test Chart at twenty feet, and also read diamond type at from five to twenty inches. The lenses she used would not help her lensless eye to accommodate. On October 8, 1894, a patient of Dr. A. E. Davis who appeared to accommodate perfectly after the lens in his eye had been removed, consented to appear before the New York Ophthalmological Society. Dr. Davis reported that the members of the society were divided in their opinions as to how the patient was able to accommodate for the near point with his distance glasses on; but the fact that he could see at this point without any change in his glasses was not, and could not, be disputed. This report, which gives a review of the whole subject, was printed in Reports of the Manhattan Eye and Ear Hospital, January, 1895, and was entitled, Davis:

Accommodation in the Lensless Eye. The patient was forty-two years old. Eight months after his lens had been removed the patient returned because he had a problem. He had discarded the reading glasses given him and read with the glasses given for distance only. This meant that he was accommodating, or focusing, with his lensless eye. The distance glasses would not focus to meet the near print. He wanted to be sure this practice would not strain his eye. Dr. Davis found that with his lensless eye and the distance lens he could read the ten-foot line at twenty feet, and could also read fine print at from fourteen to eighteen inches. As this was his first experience with such a case, Dr. Davis presented it to the Ophthalmological Society. Four months later the patient had improved his near vision—that is, he was accommodating better, and read diamond type at from eight to twenty-two and a half inches. There are other cases on record just as convincing.

Impressed with this specific demonstration, Dr. Davis subjected the patient to various tests, and recorded some most significant observations. He made on that lensless eye, the same tests reported by Dr. Donders long years before, which had satisfied Dr. Donders that the lensless eye could not accommodate. The findings of Dr. Davis were so different from those reported by Dr. Donders that Dr. Davis decided the tests specified by Dr. Donders were wholly inadequate to decide the question at issue.

During his experiments Dr. Davis found that the curve of the cornea, which is the covering on the front end of the eye, was changed and was moved forward a little. This would indicate that the eyeball had been made longer. These changes were demonstrated by the use of an ophthalmometer, which is an instrument for measuring the curvature of the cornea. He therefore felt himself bound to conclude that these changes must have been produced by the action of the external muscles of the eye. No other mechanism in the eyeball could do this.

The above recorded objective proofs are commonly ignored, or some specious explanation is offered for them. It is stated by some that the shape of the eyeball cannot be changed and made longer. But it is admitted in standard text books that the external muscles of the eye may change its shape. It is established that astigmatism involves a change in the shape of the eyeball. In astigmatism the abnormal shape of the eye varies. Cases are on record of the voluntary production of astigmatism. In one case, a house surgeon in the Manhattan Eye and Ear Hospital in New York frequently increased the abnormal curvature of each of his eyes considerably, in the presence of a number of members of the staff of the hospital. Dr. Davis, who knew this house surgeon, concluded that the changes in his case were brought about mainly by the external muscles of the eye.

The findings and tests given above, which are reported by many competent observers of good professional standing, are all independent of any statement by Dr. Bates. Unless they are disproved, they demonstrate that the lens is not the factor in the eye which accomplishes accommodation. These findings, on the other hand, offer no proof that the external muscles of the eye do not change the shape of the eyeball. Those muscles are the only other factor which could accommodate the eye. If those muscles can make the eyeball longer, lengthening the focal distance between the anterior surface of the lens and the surface of the retina, no other answer is possible—the external eye muscles accomplish accommodation. That was the conclusion forced upon Dr. Bates, and instead of simply denying the possibility of such a function, he undertook the only known experiments to find out the truth.

The six external muscles of the eye obviously serve to turn the eye in different directions according to need. Their further function has always been a subject of discussion. Dr. Bates was the first to undertake a scientific examination of their powers and functions on a living eye. Having decided that the lens could not be the accommodating factor, he surmised that the two oblique muscles accomplished it by compressing the round eyeball in the middle and making it longer horizontally. He cut those muscles in the eyes of fishes and rabbits and cats and dogs. When they were cut, the eye could not accommodate; and when he injected them properly with a drug that paralyzed them, the eye could not accommodate. When he sutured the severed muscles so they could contract again, the eye did accommodate. When he washed away the paralyzing drug, the muscles recovered their power, and the eye accommodated. The proof of the accommodation was demonstrated by the retinoscope, an instrument used by ophthalmologists for that purpose. This procedure he repeated several times in the presence of professional specialists, and they verified his findings.

This discovery of Dr. Bates explains why eyes can accommodate when the lens of the eye has been removed. It does not conflict with what is known of the structure and function of the tendon and the tiny ciliary muscle that sustain or modify the convexity of the lens. His discovery explains many apparent discrepancies in the theories which are held, or discussed, by eye specialists. It shows why and how it is possible to prevent and to cure the various abnormal function conditions which are such a distressing problem to the men whose work is to care for and to help the increasing number of victims of defective vision.

It is established that the normal eye at rest is adjusted only for rays coming from a distance, not for rays reflected from objects nearby. Rays from nearby objects would come to a focus behind the retina. But the myopic eye, that is the nearsighted eye, does constantly focus the rays reflected from near objects. It is accepted that the myopic eye is always longer horizontally that the normal eye at rest, when it is not focused—that is, accommodated—for nearby objects. When, however, an object is brought nearer to the normal eye, which is not nearsighted, not accommodating, there must be an adjustment made to perfectly meet and focus upon the retina those nearby rays which are more divergent as they reach the lens.

Ophthalmologists have noted that a change is felt to take place in the normal eye when the adjustment just described is being made. They accept this as proof that an effort is being made by the eye involving a sufficient muscular contraction to be appreciated as a sensation. Also, it has been noted that when the object is moved farther from the eye, there is a sensation of relaxation, and it is concluded that this denotes a relaxation of the contracted muscle. It is implied that these sensations of contraction and relaxation are produced by the action of the tiny ciliary muscle. The idea that such sensation would be caused by the action of the incomparably larger external eye muscles does not seem to have been considered at all. This seems the more remarkable since it is established that the eye is longer when nearsighted, and such a change in shape would necessitate the contraction of the external muscles. There is a double indication in this muscular feeling. First, such a sensation might reasonably be attributed to the contraction of the two oblique muscles on the outside of the eye. Second, it cannot be questioned that the nearsighted eyes vary in the degree of nearsightedness, and even quite frequently cease to be nearsighted. Dr. Bates claims that this variability is caused by the contraction and relaxation of the oblique muscles.

The theory offered by Dr. Helmholtz was that the tiny ciliary muscle served to diminish the tension of the tendon which held the lens in a flattened oval shape. This would result in the lens, by its own elasticity, assuming a more curved shape. That is the explanation attributed to him in a standard textbook. But in the same section of the book it is pointed out that Dr. Tscherning, who agrees that accommodation is accomplished by an increase in the convexity of the anterior surface of the lens, disagrees with Dr. Helmholtz as to how this convexity is produced. He claims, in opposition to Helmholtz, that contraction of the ciliary muscle causes a tightening and not a relaxing, of the tendinous fibres of the zonula of zinn, and that the bulging of the lens in accommodation is produced by an active compression instead of by a passive dilatation. The text book also points out carefully that the theory of the lens being the factor which accommodates does not harmonize with other accepted theories in optics. The book cites the theory of presbyopia as one which does not harmonize. Presbyopia is a supposed condition in which the lens begins to harden when one is forty years or older. A lens too hard to change its shape could not accomplish the exquisite lightning-like changes in shape necessitated by the theory of Dr. Helmholtz.

The statement in the text-book is a reminder that, according to the theory of presbyopia, in later life the lens is hardened, and could not contract and expand. If the lens does so harden, and cannot expand and contract, this would render worthless the theory of Dr. Helmholtz and Dr. Tscherning. The text-book right there apparently points out that the theory of accommodation being accomplished by the changing in shape of the lens cannot be true. That text-book is a standard. Its statement is very plain. There is sufficient evidence, in plain sight and not to be denied, that many eyes continue to accommodate even when very old.

In a case of my own, a man of eighty-five had worn glasses constantly for over forty years, and was both nearsighted and astigmatic. He was able in a short time to read Snellen Test Chart at the proper

distances, and to read any ordinary print or writing at the customary distance from his eyes. He did that in the presence of others besides his family, and never wore his glasses during the two years before his death.

In considering the same mechanism, these two men of genius conceived two contradictory interpretations of the way the mechanism worked. Suppose we try to imagine what is involved. To meet the conditions of their propositions, the curvature of the lens must change quicker than thought itself, constantly, with a perfect infinitesimal precision. It is not easy to imagine a fluid mass doing that. To conform to the theory of Dr. Helmholtz, the ciliary muscle would have to pull on the tension of the tendon and loosen it. This would permit the capsule holding the lens in shape to relax, and the lens could then push itself into a more spherical shape, and present instantly the exact curvature required, and with the moving fluid mass at rest. According to Dr. Tscherning, instead of a softening capsule, and a released fluid changing its shape, there would be a tightening of the capsule, producing an active compression of the lens, which, however, instead of squeezing its fluid elastic contents flatter, would somehow force the contents into a more spherical shape. Which is the more reasonable of the two guesses? Before one makes his own guess on that question, memory puts on the scales the confusing recollection that the medical record is full of instances, not to he denied, in which the eye has accommodated after the lens has been removed.

In a standard medical book on the eye, we are reminded that the eye has been justly likened to the camera. An explanation is then offered to show why the eye is like a camera. In that comparison it is explained that the camera has opaque sides, a diaphragm in the front of the lens to keep out the peripheral rays, and an adjusting mechanism to accomplish the necessary process of focusing the rays of light so they will meet properly on the film. We are told that the eye also has opaque sides, and an adjustable diaphragm, and that the lens of the eye is itself the adjusting mechanism to secure the proper focus for the retina.

In reality the human eye is not like a camera, but a camera is like the human eye inasmuch as its film records images chemically. The mechanism of the camera is governed by the same natural laws as are exemplified in the functions of the eye. But the human eye has a range of vision which is incomparably greater than the powers of the camera.

Those who devised the camera, (as well as the telescope and the microscope,) found that the way to focus the refracted rays of light correctly upon the camera film was to arrange an adjusting mechanism that would move the lens back and forth, so as to place it at the proper distance from the film. In other words, the only changes that take place through the adjusting mechanism of a camera are changes in the focal distance between the lens and the film. Eons before this was discovered the human eye was focusing the rays of light upon the retina in just that way.

In the analogy referred to above it is stated that in the eye the lens itself is the adjusting mechanism which focuses, or accommodates. If that were true, it would destroy the analogy. The lens in a camera is not itself an adjusting mechanism. It is a constant factor. It does not accommodate. Its only function is to refract the rays as they are received, and the result depends only upon its position in relation to the recording film. The lens in a camera is a piece of glass, and cannot change its shape.

The changes which take place in a camera accomplish an increase or decrease in the distance between the lens and the film. In that it imitates the human eyeball. The text-books explain that when the human eye is nearsighted, which means that it is focused so as to see nearby objects, it is longer than its normal resting condition, and the retina is farther from the lens. Those who devised the camera found it necessary to arrange for just such a change in its length. In taking a photograph, when the object is near, the lens is pulled farther from the film. Whenever the human eye accommodates so as to be focused properly for nearby objects, it accomplishes the accommodation by lengthening the eye horizontally, and increasing the distance between the lens and the retina.

The eyeball, in changing the distance between the lens and the retina, changes its shape. Its walls are curved. When the rear end recedes from the lens, the curvature of the walls changes as the ball is made longer horizontally. The lens is placed a short distance back from the inner side of the front end. Its

substance is not an unchanging solid. Its capsule, the flexible envelope which holds the contents in shape, is fastened to the curved inner sides of the eyeball by the tendon which controls its shape. Any change in the shape of those walls may modify the convexity of the anterior surface of the lens. This relationship makes it necessary for the exact shape of the lens to perfectly conform to any change made in the curvature of the anterior end of the eyeball. This is necessary because the outer covering there, the cornea, is also a refracting medium, and the lens must conform to any changes that may occur in the refraction which takes place in the cornea. It is necessary also for the convexity of the lens to conform perfectly to whatever changes occur in its relationship with the retina consequent upon the changes in the shape of the eyeball. The same impulse or nerve control which issues from the visual center in the brain harmonizes the co-operation of the external muscles and the ciliary muscle of the lens.

The lens serves as an auxiliary adjustment, secondary and compensatory to whatever changes are produced by the action of the two external oblique muscles of the eye.

The explanation offered here accounts for the varying and unsatisfactory findings of Dr. Helmholtz. He reported that the images he saw were varied and blurred and so inconstant that he was puzzled, and was not willing to make a positive statement about them. This illustrates his meticulous honesty. The text-book already quoted, points out that his hypothesis must have been wrong. The explanation offered here also accounts for the scientific findings reported by Dr. Bates. He secured photographs of the tiny images formed on the lens by a powerful electric light delivered by a series of adjustments through a constant aperture. These tiny images varied under external conditions which were exactly the same. The reasons are to be found in the varying slight changes taking place in the convexity of the surface of the lens, consequent upon different degrees of change taking place in the shape of the eyeball.

The import of these facts, in their relation to the Bates method for treatment of difficult and abnormal conduct in the mechanism of vision, is that in moat cases of astigmatism and many cases of nearsightedness, the principal fault is the abnormal action of the external eye muscles. In astigmatism the shape of the eye is changed from its natural form of a perfect sphere. The deformity is so different in each case, and so variable from time to time, that, apparently, the changes must be caused by the varying tension of the muscles which are attached to the walls of the eyeball, and bring pressure upon those walls when they contract. Those who are nearsighted experience the same difference in the degree of trouble. Their power of vision varies constantly. In many cases the defect disappears spontaneously, even after being present many years. No other theory has been offered to explain this variable conduct. This explanation of Dr. Bates makes clear why the changes occur. His claim that the eye sees perfectly when it is perfectly relaxed covers the nerve controlled action of the muscles, and the tension in the visual centers. He insists that in order to have a normal relaxation in the eye muscles there must be first a normal condition, free from tension, in the centers in the brain. Such a condition returns spontaneously when disturbed vision becomes normal without any outside help. That is the explanation of those cases which get well. Obviously, then, it is possible to influence those factors which control such changes. During forty years of successful work Dr. Bates proved the truth of this simple law.

CHAPTER IX

EYESTRAIN

IN THIS chapter we will leave the field of the technical specialist, and come out among facts that ire familiar to people of general intelligence. I hope the reader will deliberately put aside for the moment the vague, thoughtless attitude of mind which is so common on this subject. I ask that the reader remember eyes as they were a few years ago, when most plain people did not think of wearing glasses. It is worth while to let the mind dwell on the fact that, among those we see around us today, the majority live unconscious of their eyes, because they never have any trouble with them. It will make it easier to grasp the meaning of the facts, if one will ponder the description of the man with the three story intellect, which is quoted from Dr. Oliver Wendell Holmes in the August, 1936, Readers Digest, and let a little illumination come in, right through the skylight, and light up the imagination.

A specialist of high standing, at an annual convention of ophthalmologists, made a very interesting official speech. In that speech he declared that the word eyestrain' is a great asset to eye specialists. He went on to say that to the patient it has a definite and satisfying meaning, but to the doctor employing it, the word—strain", applied to the eye or any part of the eye, is almost, if not quite, meaningless, so that by its use he does not really commit himself in any way.

Coming from an eye specialist that is a remarkable declaration. Such a statement might easily be misunderstood. Certainly it could not be considered scientific. It is not a fair accusation against the men who specialize in the treatment of the eye, and who are constantly offering that explanation to their patients, as the speaker himself pointed out.

This speaker explained also that a knowledge of psychology is useful to the ophthalmologist in many ways, both in the making of a diagnosis and in the making of an explanation to the patient.

That statement is also interesting, and could form the basis for profitable discussion. If psychology is so important in the diagnosis of the condition, and also of such importance in explaining the condition to the patient, why is it that psychology is allowed no part in the treatment of the abnormal condition the physician finds affecting the eyes of the patient?

The same speaker further gave it as his opinion that the importance of errors of refraction has been, and still is, greatly exaggerated by ophthalmologists. He even pointed out that the opinions of ophthalmologists themselves are responsible for the prevalent belief that incorrectly fitted glasses are a menace to the integrity of the eyes.

That incorrectly fitted glasses are often prescribed for patients is a claim constantly found in articles written by specialists on the eye. They mean that the doctor, or optometrist who fitted them made a faulty computation in estimating the degree of refraction that would suit the defect in the eye. Because such glasses would make functioning even harder for the eye which is already having difficulty in seeing, the ophthalmologists believe that glasses which do not suit those eyes are likely to damage them. The speaker seemed to assert that such a statement is not true.

In a small booklet, one of a series of popular health instructions written by recognized medical specialists, an ophthalmologist makes a very different comment on the affection called eyestrain. He describes the condition as one causing suffering, and claims that other numerous reflex disturbances arise from it. He emphasizes, as an established fact, that the great relief which correctly fitted glasses give to those suffering from eyestrain, and from the numerous reflex disturbances that arise from it, is a matter of daily experience in the work of ophthalmologists. It is his opinion that eyes suffering from eyestrain are physically unfitted for their work, and that properly fitted lenses are the only corrective measure.

One might wonder what would be the outcome of a debate between these two men who are medical specialists in the same field. They express what are apparently two different and contradictory views upon a fundamental principle in their profession. It is probable that between them they each would neutralize the others contentions. Such a solution is often the result when two opinions meet that are at the extreme opposite ends of any subject upon which there is such a wide difference of opinion.

In a book which has perhaps the highest rating as a standard text-book of ophthalmology, the word "asthenopia" is defined as a sense of strain and weariness in the eyes and head, incurred by the use of the eyes. The patient feels that the eyes give out. This may be accompanied by actual pain in the eyes and in the head, and even in various parts of the body, by irritation, redness, or burning of the eyes and lids. In some eases there may be muscular spasms, digestive disturbances, nausea, and interference with general nutrition. The condition, as is explained in the book, may be caused by refractive errors; or the symptoms may be caused by abnormal functioning of the muscles of the eye; or by some specific nervous condition, as neurasthenia, or hysteria; or by unsuitable light; or produced by morbid conditions of other organs, for example, the nose and teeth. Or again, these symptoms may be produced by attendance at a theatre, or a game, in shopping, motoring, train riding, or walking on a

street—so occasioned by moving objects. As other symptoms of which the patient may complain, the book mentions blurred vision, which may be temporary or permanent. The object seen may be blurred, or several objects seen, where there is only one. Print may run together and separate again. There may be great inequality of vision in the two eyes. There may be flashes of light, or floating specks before the eyes.

We are told in that article in the text book that asthenopia is the most common of all eye symptoms, and the one that is most readily relieved by proper treatment, which treatment, it is stated, consists essentially in the removal of the cause.

Upon the substance of that accepted statement in the text book, the system of Dr. Bates is founded. The symptoms described in that text book are those which Dr. Bates constantly discussed. His explanation also is that those symptoms are to be relieved by removing the cause.

In the text book some specific conditions in the system are tamed as the causes, as, for instance, nasal or teeth conditions, or some plain and definite conditions of the general nervous system. The meaning is that these other conditions of the system, through an abnormal nervous reaction, produce the disturbances in the conduct of the eyes. No doubt that is often true. But in many cases, if not in most cases, of abnormal visual function, no other abnormal condition in the system is apparent. Most of those patients who are told by the ophthalmologists that their disturbed vision is due to eyestrain are otherwise in apparently good health.

It is explained in the text-book that the symptoms, the sense of strain and weariness, and so forth, set up by the use of the eyes, may be caused by the errors of refraction, or by abnormal functioning of the muscles of the eye. But both of those abnormal conditions are themselves caused by abnormal nerve reflexes. They are themselves symptoms caused by an abnormal condition. They are absolutely nerve-controlled muscle functions.

The specific contention of Dr. Bates is that these different kinds of abnormal vision, including the described sense of strain and weariness, and the abnormal functioning of the eye muscles and the consequent errors of refraction, are all and several caused primarily by an abnormal condition of unnatural tension in the central nerve control of the brain.

This claim furnishes a reasonable and a satisfactory explanation for all the various aspects and considerations involved in this question. This vital problem has been discussed and disputed as long as the mechanism of the eye has been investigated. That it is still being discussed and disputed, is well illustrated by the opposing views held by ophthalmologists of today, as already quoted.

When a camera film receives a picture which is "out of focus", the rays of light were so directed that they did not meet properly on the film. There was an error in refraction. This was done by the brain of the camera—that is, by the hand of the photographer.

The human eye is not as simple as the camera, but its muscles and its consequent refraction are likewise dominated by a force which determines exactly what those muscles will do. We do not blame the camera when the lens is placed at the wrong spot on the slide. When the eye muscles function so that the rays are improperly refracted, the muscles are not at fault. The impulse that was produced through the current in the nerve gave the muscles a wrong command.

Sometimes such an order simply makes the muscles fix a wrong focus. The difficulty then is that the rays do not meet where they should, and a clear image cannot be perceived. Many who are nearsighted, or farsighted, or astigmatic, have no discomfort. Often, however, there are different kinds of sensations with vision, and there may be pain present even when the power to see is at the same time very good. These different symptoms are caused by varying abnormal impulses from the nerve centers of the brain.

What is called eyestrain, or asthenopia, is the same kind of a condition as the various abnormal conditions of the nervous system, which physicians refer to as nerve tension. We all have experienced some kind of a feeling which could be described as tense. Perhaps a feeling of straining in the mind, or perhaps an actual fixed tension of the muscles of the body.

It is very easy to produce such a condition in the eyes by a deliberate effort. If we do this with a strong enough will it is possible with normal eyes to produce blurring and an indistinctness of objects, and even to develop severe pain.

Thus far it is quite simple. No one knows what tension is, or what relaxation is, or what sleep is. But we all have experienced these different feelings. We all understand that tense muscles do not box well, or play tennis well; and this helps us to realize that when eye muscles behave likewise, they have the same success in refracting rays of light as the muscles of a tennis player have when his mind is in a state of "jitters". Just as tennis players have their goad days and bad days, have brilliant plays and wretched flunks, so the work of the eye varies, too. A nervous, uneven, unreliable athlete can be relaxed and developed into a fine, consistent performer. Even more so, an eye which is poor and unreliable, only because there is an abnormal tension in the visual center in the brain, will function with a new power when the controlling mechanism in the brain has recovered a condition of normal relaxation.

It is difficult to describe a condition which is recognized only as an experience. But it is possible to discuss its presence, and to consider results that are apparently caused by its influence. The offices of specialists in the diseases and dysfunctions of the nervous system are not filled with patients suffering from organic conditions with structure changes. The majority of those they are treating are afflicted with many varieties of abnormal sensations and functions for which no cause can be found except an unusual conduct of the central control of the nerves of the body. As examples, consider those who suffer from nervous indigestion, insomnia, neuralgia, nerve-tire, spasmodic contractions of various muscles, extreme irritability and even remarkable mental attitudes. The majority of those who are wearing artificial lenses are simply examples of the same type of dysfunction, affecting the visual center and disturbing the normal function of the eyes. Their variable symptoms, changeable conduct, sensitiveness to environment, unaccountable occurrence, and frequent spontaneous disappearance, all classify them as only one, and perhaps the most frequent, of the conditions commonly spoken of as nervous disturbances.

When one considers the extremely complicated mechanism of vision, its uninterrupted ceaseless functioning, the very different and constantly changing environment and diversity of its work, one wonders, not that it so often falters, but that the visual center resists so well, and fails so seldom to sustain a perfect equilibrium. This consideration is surely most typically exemplified under the stress the human eye has to meet in the environment of those who live in the places where the multitude of wearers of artificial lenses is found. We know very little about the astigmatism and errors of refraction of those who do not live convenient to the office of the eye specialist. But it is not hard to realize that the great mass of the population of the globe seems to have no difficulty with its eyes. This is true of the uncivilized man, whose life constantly depends upon good vision; and it is true of the civilized man who must have good normal sight for figures, or print, or operating machines, or fine detail discrimination. It is easy to accumulate incidents which apparently support this conception of a tension in the visual center as being the cause of eyestrain. It is just as easy to support the claim that it is possible, in a simple manner to relieve the strain, so that the eyes will again function in a normal manner.

Examining twelve hundred scholars in a large school, Dr. Bates demonstrated normal vision in a boy who was known to be quite nearsighted. The doctor's explanation that he read the ten-foot line at ten feet meant nothing to his teacher, because she knew he had not been able to read the words on the blackboard, nor the figures on the face of the clock. But when the boy presently succeeded in reading the clock and reading whatever she wrote on the board, she was astonished to see such a change in one minute, and she was interested enough to ask for a Snellen Chart to hang in the school room. The change in the power of the boy's vision was accomplished by the influence Dr. Bates had been able to exert upon the tension in the boy's mind. The tension was an abnormal reaction, produced by some

stress consequent upon difficulties the boy found in his work. The presence of a new personality, impressing his mind with encouraging information, changed the attitude of apprehension, and permitted the normal function to return. Such mental reactions are seen constantly in children. Why should it seem unreasonable to have them occur where the eyes are concerned?

In my own work, a similar case was a boy of nine whose parents had been told by an optometrist that the reason he had constantly poor vision as well as pain, was because his eyes had not developed, and he was nearly blind. That diagnosis by an optometrist seemed so serious that they took him to a certain eye specialist in San Francisco, and he agreed with the diagnosis of the optometrist. Some weeks later, when I first saw the boy, he read without glasses, at a ten-foot distance, the forty-foot line on the Snellen Chart. This demonstrated that the diagnosis was certainly wrong. His vision was not even very poor, and there was no warrant for the claim that his eyes were undeveloped. He had nearsighted eyes with astigmatism. Having relieved the distress of his mothers mind by this proof that his eyes were not undeveloped, I directed a system of daily practices for the purpose of relaxing the tension which was so seriously disturbing the functions of the muscles of his eyes. The condition was relieved so rapidly that in ten days he was reading, at ten feet, the ten-foot line. He kept on improving and has had fine normal vision ever since. His mother was a great help by interesting his mind constantly in the Bates method of practicing relaxation.

A boy who stuttered was brought to me, and he stuttered badly when we began to talk to each other. I could see he was quite embarrassed by the evident annoyance of his parents. When I found that he was the best basket-ball player in the school, I told him some stories of the days when I played center, many years before he was born, and told him why and how the Y. M. C. A. started the game. It was most gratifying to listen to him talk and question, with flashing eyes, for fifteen minutes, and never a stutter. When presently I asked him why he stuttered when he played basket-ball, he replied, in an astonished voice and without a falter, "I never stutter when I play basket-ball." And I answered, "I knew you didn't," and told him why I knew it. He began right there to shed the tension that had hampered his speech, and his greatest help was to think of his basket-hall game. It was exactly the same mental process which relieved the tension that caused the astigmatism in the case of the younger boy with the defective vision.

A man of forty-two came to me with the explanation that he had had better than average eyes until he was thirty-five. During seven years he had tried three specialists. They agreed that his condition was a compound astigmatism caused by eyestrain, and that nothing could be done but continue to try new lenses. When he came to me he was quite concerned about his condition. I agreed that eyestrain was the cause of the trouble, and he was apparently quite disappointed. But when I followed with the remark, that this itself was really caused by a mental tension, he was surprised and then amused. He said he had nothing to worry about; that everything with him was "hunkydory." He couldn't believe his brain had anything to do with it, and could hardly get the distinction between worry and mental tension. When I asked him what it could be that worried the children who are being suddenly fitted with glasses for the remainder of their lives, because they have eyestrain only, he began to see the light. He was so much concerned about the discouraging condition of his eyes, and so much interested in the entirely different kind of treatment proposed, that he kept the subject in mind all day long, and he reserved three or four hours a day for the practice that was directed. In a few days he had personal evidence of the truth of the explanation he had been given, and in a few weeks his eyes were in a normal condition, with too unpleasant symptoms. He was seeing without glasses, and was quite well pleased with his success.

A young woman of twenty was brought to me by the young man she was engaged to marry, and gave a most interesting history. She was working in a home where there were three young children. Both the parents had been employed for years, leaving the children largely to the care of the young woman.

Some weeks previously a strange trouble had disturbed the vision of her left eye, and had gradually grown worse. I found that she had normal vision with the right eye, and could see just as well with the left eye the letters on the right hand end of the top five lines on the Snellen Chart. But she could not see with the left eye, any of the letters to the left of the last letter on any line, although she could see

the large two-hundred-foot letter in the middle of the card at the top. There was no abnormal sensation in either eye, but there were increasing recurrences of vague, unpleasant sensations in her head.

She had gone to an optometrist to learn if glasses would relieve the difficulty, but he had refused to consider lenses, and had urged her to consult an ophthalmologist, explaining that the condition was serious.

The couple agreed to return to my office in the evening, when there would be quiet and time for deliberate inquiry. By careful questioning it was developed that the mother of the children was agreeable enough to contact, but the father was a peculiar type who encouraged and seemed to enjoy open insubordination on the part of the children to the girl's management while he was present. He would then comment cynically, in their presence, upon her handling of the situation. She was an earnest and evidently capable girl, and was very anxious not to lose the position during the next few summer months. There was no apparent abnormal condition of health. The ophthalmoscope showed no apparent abnormality in the left eye.

Having explained that I believed the condition of her eye was caused entirely by a mental tension, and given some of the reasons which seemed to warrant such a diagnosis, I began an effort to correct the fault. Seating the patient comfortably, I turned out the lights, and for half an hour we three remained in quiet darkness while I endeavored with suitable conversation to impress on her mind such ideas as I felt would influence her own train of thought and produce a condition of mental relaxation to displace the abnormal strained condition of tension.

When I then turned on a strong reflected light, which left the room in darkness except the Snellen Test Chart ten feet from her left eye, with a patch covering the good right eye, and helped her with some encouraging directions, she soon was able to read all the letters on all the lines of the card. The condition which had been developing for some weeks was relieved in one hour, and was a fine demonstration of the usefulness of the method of Dr. Bates in curing imperfect sight by relieving the tension which controls the whole mechanism of the perception of visible objects.

Temporary errors of refraction caused by straining to see are certainly quite common, and are dysfunctions resulting from some temporary condition of the mind. It would be easy to recall illustrations of this. For instance, the well-known classroom experiment with students in psychology, where they are warned to use their eyes well when an incident is suddenly introduced a few moments later. Perhaps a young man, or a young women coming suddenly into the room, goes through a series of startling movements and disappears in some unique way. Generally, no one out of a number of students will see the incident precisely as any other student sees it. Frequently some of them report the same incident differing from any other account, and there will be several divergent statements.

It is a common experience in a court room to have several disinterested and sincere witnesses leave out, or contradict, details which were easily and plainly visible to other witnesses. If it is contended that some of these illustrations are not proved errors of refraction, the answer is: first, we do not know whether they are or not; and further, the fault is in the mechanism of sight perception, and it proves a defective functioning by some eyes which would not have occurred under ordinary conditions of deliberate observation. It is not unusual for a spectator at a football game to miss entirely a movement that was plainly seen by others on the same spot, although the one who missed it had just as good, or even better, eyesight than the others. Some patients report such imperfect perceptions as recurrent experiences, and can even designate certain circumstances under which they will occur.

In those cases where there is fixed and constant error of refraction, the common experience is that a condition of abnormal sight begins imperceptibly, without any cause or influence or sensations of which the patient is conscious, and develops to a degree which necessitates relief.

In children, an unconscious tension is often developed by the false, and almost worthless, methods of driving young minds as operators in a line of piece-work machinery are driven to keep the pace

mechanically set by the machine. That experience commonly stultifies the other faculties of the workers; and, of course, similar treatment has the same effect on the children, and in some of them it originates the unconscious urge which makes the mental tension that reacts against their eyes. There are mental tensions developed in some children even before they go to school. Possibly there is some inherent nervous tendency. In one case under my observation it was obviously a thoughtless mother who "got on the child's nerves." When adults ask me how and why it happened that some unconscious strain came into their mind and gave them chronic poor eyes, I answer that it is not necessary to know the cause of the tension. The evidence of it is enough. No thoughtful person questions the common occurrence of some kind of a mental tension. It is reasonable enough to accept this specific and only tangible and positive cause that has ever been given as the background of these cases.

The real question is whether or not the patient is interested in a simple and practicable course of effort to secure the priceless faculty of a pair of fine, happy eyes with which to go on through life.

When one is told that there is no apparent change in the structure of the eye, but that it simply does not work properly now, and the cause of the dysfunction is eyestrain, and there is no further explanation available, one is left with the natural and simple question in his mind: Can this condition be cured, and if so, what must I do to regain a pair of ordinary good eyes that will remain normal and see things the way the eyes of other people around me are seeing?

The answer, the same as the answer given by the nerve specialist in other similar conditions, is that the details of treatment in different cases are as varied as the differences in the details found in each case. Certainly eyes differ in power. But it is as natural for eyes to work in a normal way as it is for lungs to inhale and exhale air.

The cause is a strain. The purpose of the Bates method of treatment is to relax the strain. The eye with normal sight never tries to see. Its function is simply to receive the rays of light. At rest, it is adjusted to all but the rays from nearby objects. To meet those it makes a simple adjustment. The light rays do the work. The adjustment is an unconscious automatic function. Any conscious urge serves to disturb and strain that function. When a tension exists unconsciously the effect is the same. To correct that fault, it is necessary, therefore, only to have that tension cease.

The method of Dr. Bates will be described. It involves essentially that the subconscious mind be interested and impressed through the medium of ideas in the conscious mind. There are many simple practices which serve to enlist the attention of the visual center in the brain by directed conduct of the eyes. These practices will be fully explained.

CHAPTER X

THE MECHANISM OF VISION

IN THIS chapter I would like to remind the reader again of some of the facts concerning the mechanism of vision. Only a very small part of that function is yet understood. The really important factors are beyond the present range of human knowledge. But many facts and aspects are established which give light enough on the problem to make clear the lines of approach for those who are interested—interested in an endeavor to correct whatever visual dysfunctions with which they may be afflicted.

It is known that a force called radiant energy, contacts the human chemistry in the recording retina of the eye. The transformation which follows that reaction sends on a force which so acts on cells in both of the visual centers in the brain, that a conception is formed in the mind. Without the mind the eyes could not function. The mind gives all the orders, receives the incoming messages, and makes all the decisions.

It is true that the mind must work with the images that are received on the retina. But in the great majority of difficulties with vision, the fault is that the external muscles of the eye act in an abnormal manner and misdirect the rays of light after they enter the eye. This certainly is the fault of the control

center in the brain. On the other hand, there is sufficient evidence that the brain can work effectively with retinal images that are impressed on the retina under conditions which are quite abnormal.

For instance, a woman of fifty-eight, with a thin scar on the surface of one eye, which spread in front of the lens, secured a most remarkable improvement in vision in a short time. The scar was the result of an infection in early life. The first day I saw it, she looked straight into the noon-day sun with that eye, and said it looked light; across the street it was dark. She had not seen anything with that eye for over thirty years. Her other eye had very poor sight. In a few weeks she could see three lines on the Snellen Test Chart, right through the scar; and she could not look into the sun. The improvement continued and the sight of the other eye, also, was much improved. It would seem that the confirmed habit of the mind was changed, because it became interested in a new way, and in the exercise of its power. Whatever messages it received from the retina were now utilized as they had not been for over thirty years.

A man of fifty-three came to me with a condition of what is called detached retina, in both eyes. That condition was consequent upon an extreme degree of near-sightedness, which had been growing worse for over thirty years. The retina is held closely against the inner surface of the eyeball walls by the pressure outward of the fluid contained in the eyeball. There are different ways in which that membrane may be pulled or pushed away from the walls, so that it is separated in rolls or patches, as one sees old wallpaper sometimes separated from the wall. He wore constantly a pair of prisms, and when he wanted to read, he added a second pair of glasses, in front of the first pair. He had been informed by two specialists that he would ultimately be unable to see, even with artificial lenses. When he tried to see, he had to look below or above the lines he wanted, in order to catch the rays of light on the folds of the displaced retina. That man became able to read without any lenses, and at times he could see with very little change in the direction of his eyes. The measure which helped him most, perhaps, was the use of a Kromayer ultra violet ray lamp directed right through the lens of the eye. When he ceased coming to me he was quite happy with the fine improvement in his vision.

It would be beside the point, and of no value here, to offer any explanation of the conduct of the different factors involved in the detachment of the retinas, the failure of sight, and the wonderful improvement secured by the treatment. It is not a question of veracity—nor need it be. There are those who have opacities in the lens, called cataracts, and the rays of light are so hindered that the patient is capable of very little sight. Such conditions often improve, and the patient may even be blessed with a return of normal vision, without any treatment. A patient of mine, who was afflicted with cataracts for many years, and finally, in her own words, was almost blind, secured a wonderful improvement in two weeks, and soon had very good vision. The opacities continued, easily seen at all times, but variable, however, in size and in density. Although always helped by sunlight and methods of relaxation, there was a constant undercurrent of a special tension in her mind which would often hamper and disturb the vision, and was relieved, sometimes in a moment, when the morbid attitude of the mind was overcome by some simple expedient which secured relaxation.

Even a very little deliberation impresses one with the large part the mind has in the process, when a conception is registered from an impression coming into the conscious mind. Very much depends upon custom and familiarity. A technical worker sees constantly, almost automatically, what a stranger to that work can hardly see, and must actually learn to visualize. But that stranger can see quicker and better than the worker, the details in a picture which is familiar to his own mind.

We often seem to see an object as it generally is, when actually a detail is changed—she has had her hair cut, he has no watch chain on, or has a belt he never wore before, the old cover is gone from the spare tire, there is a new rug on the floor-and we must admit, "Oh, yes, I hadn't noticed it." We are familiar with the word "extraordinary," and read it without noticing the letters, but when we come to the word "mechanist," which we never saw before, the mind commands "wait—attention." Women, late in life, can thread a fine needle, even when they cannot read ordinary print, or write without glasses. The previous knowledge, the habit of the mind, its degree of attention at the moment, have much to do with what we see when we are looking. In other words, past impressions, habits of the mind, attention, imagination, all of these even modify the orders of the mind to the eye-muscles that perform the automatic function of accommodation.

Often I have enabled a patient to improve the sight so much in half an hour that the eyes could read three or four lines more (lower) on the Snellen Test Chart. This by simply securing an alert and attentive interest on the part of the mind. There are many ways of doing that, of course. But it is necessary, absolutely, that the mind be freed from constraint or inhibition, either mental habits or any distracting influences. Nothwithstanding the difference in minds and their habits, I have learned that eyes which are different in every way respond with a fine increase in the power of vision whenever the conscious effort is strong enough to enlist the co-operation of the part of the mind which commonly takes charge of the automatic functioning of all the factors involved in vision.

It is often difficult to secure that necessary attitude of mind. The subconscious part of the mind does not always yield readily its habit of taking complete charge. Under abnormal conditions it frequently constrains the visual centers, and the subordinate muscles of accommodation, to reflect in their conduct the same state of tension which is present in the mind. Often, when a patient is sure there is an absolute compliance with instructions, it is evident that the will of the patient has made no real impression upon the working part of the mind. Commonly, children respond more readily. That is to be expected. Their minds are more flexible—less confined in fixed attitudes and habits. There must be back of the endeavor, that which I have learned to think of as an emotion. The child I cannot interest is very hard to improve. On the other hand, when an adult, even an elderly person, is impressed with a conviction which is an emotion, the change will always come, and sometimes it begins instantly.

In a case referred to briefly in an earlier chapter, a man of forty-two, with a record of fine eyes far thirty-five years, reported a serious progressive condition of astigmatism for seven years. The three different specialists, and the many pairs of glasses he lead tried, had failed to restrain the development of the malady. He came to me only because the third specialist had refused even to try a new set of lenses at the moment; and the patient responded, in a perfunctory way, to a friend's suggestion that he try the method which had helped the friend's own similar condition. His consciousness of his extremity prepared his strong, practical mind for a conception new and different from anything he had ever heard before. He only raised his eyebrows when told that his trouble was caused by eyestrain. He had been told that before. He was amused when told that mental tension was the cause of the eyestrain. But when it was made clear to him that there certainly was a center in the mind which controlled the automatic conduct of the eyes, just as every other function in the body is likewise controlled, he grasped the significance of the new explanation. His mind had already realized that his vision was even more important to him than his business. When asked how many hours a day he could give to the new endeavor, instead of explaining what a busy man he was, he deliberated a moment and then answered that he could devote four hours each day to the trial. The improvement began at once. The emotion which moved him insisted, through his will, and secured the co-operation of every part of his mind, and the orders to the eyes were changed.

This case is one of those which make it seem so clear to me that every factor in the complicated act of seeing is part of a complex, inseparable mechanism. The brain is the engineer. The mind is the captain. When the captain is mindful of his duty, every part of the mechanism will perform in order, and there will be no conflict.

In a current book, which is now a classic, written by one who has been a life-long physician as well as a biologist, it is emphasized that it is necessary to have an accurate knowledge of the physiological and mental functions of man, and of his adaptive functions. The author asserts that the atrophy of mans adaptive functions, consequent upon the habits of modern life, is a chief cause of the weakness of human beings. But it is the very existence of these functions, he points out, that permits us to intervene victoriously against the declining powers of the race, and put the race back on the road to physical salvation.

That conception is an exact explanation of what is wrong with the human eye today. It is failing to use its adaptive function. There are those who offer the preposterous assertion that the eye is being called on for work nature never intended it should do, and for which it is not adapted, and which it cannot do. Those who make this claim seem to be unconscious of the fact that many millions are meeting today the conditions named specifically as impossible, and are living proofs of the present power, ready for any need, of the adaptive function which that author claims is the salvation of those who want it. Their

assertion, and that is all they could claim for such a statement, leaves out of account the adaptive function which is one of the obvious qualities in the history of the eye.

In all but one of the fields of medicine there is a sustained effort to practice earnestly what the author of that book has so powerfully preached. The eye alone is being neglected. There is no least effort being made to study, and nurture, and develop and save the functions and power of the mechanism of vision. The higher mental elements of the faculty of vision are being deliberately ignored.

The prevailing method of treating visual dysfunctions apparently takes it for granted that the human lens has not the power to use its adaptive function—in other words, that it cannot refract the rays of light properly, and that it cannot recover what power it has lost. The prevailing method ignores the human lens, and gives the eye an artificial glass lens to refract the light rays right through it back to the retina.

Two of my cases, brothers, are most interesting from the point of view of this chapter. The first one, twenty years old, came about a slight injury, but spoke incidentally about his eyesight. He asked about a good "eye doctor". His report was that from his earliest recollection he had been near-sighted. He remembered that when he began to read, he had to "stick his face in the book"; and he kept that up, in spite of the remonstrance of his father. During the years, his trouble had continued, and now he was so near-sighted at his work in the shop, that he had decided to get a pair of glasses.

My first surprise was when I found he could read the ten-foot line at twelve feet—although he had never seen the Snellen Test Chart before. I then tried his eyes on some stereoscopic pictures which are arranged for testing the focusing power of the eyes. The two pictures on the cards are duplicates, one on each half of the card. The test is for the eyes to fuse both pictures into one—just as the normal eyes fuse into a single image the objects which are seen differently with each eye. When the eyes are at fault, the pictures on the cards will not be seen as one. They may show to the mind different aspects. They may partly merge in different combinations. They may fuse perfectly and then separate. They may change when the picture is moved to different inches away from or nearer to the eyes. One picture may seem to be above the other. It often happens that the eyes being tested will seem to see the picture which is on the left half of the card as though it was on the right half. For instance, on one card the picture on the left half is the two letters ON, and on the right half the two letters NE. When the eyes fuse in a normal manner, the four letters fuse into the word ONE. Often I have had a patient apparently see on the right half the two letters ON, and on the left half the two letters NE. Since the eyes cannot see, with the right eye the letters on the left half of the card, nor with the left eye the letters on the right half of the card, such a transposition cannot be effected by the eyes. The fault in the fusion must be in the section of the vision mechanism which is behind the retina. The fault must be in the fusion center. In those cases fusion is in confusion. I have always succeeded in having the patient correct the fault, and see the pictures as the normal eyes see them.

This patient could not fuse a single picture. His eyes were not noticeably near-sighted. What he saw he could see very clearly at the far end of the slide on which the card moved back and forth. By suitable encouragement I was able to help him relax the tension which was causing the confusion. I succeeded in having his mind stop trying anxiously to see the picture in a normal manner. As he gradually became passive to the idea that his eyes would act in a normal manner if he ceased to have that urge in his mind, the different pictures began to look more like the correct single picture the normal eye would see. He finally saw most of the pictures just as the normal eye would see them. The parrot on one side of a picture went into the cage on the opposite half of the card. If the parrots head or his tail stuck out of the cage, we talked it over, and polly was coaxed back into the cage again. I found with this patient, as I find with most, that he could fuse more easily duplicate photos of landscapes, than he could the puzzle pictures. This probably is because the mind is accustomed to fusing what is seen in daily life, and finds it harder to fuse two pictures it has never seen before, like an empty parrot cage floating in the air, and a parrot standing in the air without any support.

The study of that patient during the hour we worked with the stereoscopic cards demonstrated to me that what he had been troubled with for so many years was a peculiar type of astigmatism. The reason he thought he was near-sighted, was because his astigmatism had found its own peculiar way of seeing

things coherently when it could not see them in the normal way. The abnormal conduct of the eyes was corrected in that first hour I saw him. There was some remnant of the astigmatism left the first night. The next evening it was cleared up, and the patient saw clearly and fused every stereoscopic picture I showed him. His eyes were normal for his work, and have remained so ever since.

Because of his own success, he asked me if I thought the Bates method would help his brother's right eye. That eye had been sightless from birth, as near as was known. Ten years before, when the brother was twelve years old, he had asked an optometrist if he could give him a lens that would enable him to see with the sightless eye. The optometrist had examined the eye, and told him it had never developed, and it never would develop. Whereupon he never made any, further inquiry of anyone. He came to me himself. Although I could find nothing abnormal with the eye when I used the ophthalmoscope, I found he could see very little more than light and shadow. I suggested that he have the eye examined by a medical practitioner who was an eye specialist. He replied that he had no money. I gave him a note to the clinic of a university in San Francisco. They reported to me that he had an Amblyopia Ex Anopsia—which meant that his eye could not see because it had not ever had the habit of seeing. They examined his eye fully, he reported to me, and told him the only treatment of value would be a constant habit of shutting off the good left eye, and making the blind right eye learn to see, whenever he could practice that way. He reported that they informed him it would take two or three years before he would be able to see anything worth while.

The patient was "out of a job" at that time, and occupied himself much of the day with the practices I described to him. He lay for several periods, of the day so that the strong sun was shining directly on his closed eyelids. He kept his mind attentive while he looked, without any strain, but with an alert attention, at some specific object, generally the letters on the Snellen Test Chart. He was instructed to confine his mind to the imagination of a small spot on the letter or whatever he was looking at, remembering it as he saw it with his good eye. He relaxed by lying down and listening for periods to some music or suitable program on the radio, his eyes closed, and his mind on the picture he was imagining, never thinking of his eye, always thinking of something objectively, so as to keep all other ideas out of mind. I did not examine his eye for eight days. He had been learning to see the letters on the Snellen Test Chart. I found that he could read the top three lines on that card. He would name any letter I pointed to. He could also see the equivalent of that in other objects—large letters or figures near his eye, a book, an ink well, a watch, a telephone, etc. His eye continued to improve, so that one Sunday evening when I met him on a ferry boat he was able to read, with his good eye closed, large type letters on the back of a small magazine which I am sure he never saw before.

There was nothing miraculous in the result secured in this case. A case which came under my care consequent upon her knowledge of this case, a woman of thirty-five who had been blind from birth, had an experience very similar, and in as short a time. In all of these cases there was no difference in the underlying principles of the practice directed by the eye specialist in the clinic and the specific instructions I gave.

It was not until a few months after the treatment of the two young men that I learned the secret of their very fine success. It developed that a young woman who knew of the success some other cases had secured with the Bates method under my care, was very well acquainted with both of the young men. She had so impressed their minds with the confidence that the astigmatism could be cured in the case of the younger brother, that when he came to my office his mind was already convinced, and ready for action. That is the reason, as I believe, that his eyes were able to record clearly the images of the letters at a distance of twelve feet. The stereoscope was a new and strange experience; but the new attitude of his mind was alert, and the orders from the visual center directed a normal conduct on the part of every element in his mechanism of vision.

There is fine food for thought in the consideration of the conduct of the minds of both of these patients, not only at the time of treatment, but during the previous years. Although the two young men had each a serious trouble with his vision, for the fifteen years that they both were conscious of it, one had sought no relief, and the other had made only one effort about his blind eye, and then accepted from an optometrist, without any review, a statement which condemned him to a sightless eye for life. Why then such a complete reversal of attitude? Why such a wonderful response to treatment? Any effort to

explain and describe the mentality and reactions of these patients would be, of course, largely a matter of personal opinion. The aspect of the subject I am trying to call attention to is what seems to me the very plain proof that it was the mind, and not the eyes, which was responsible for the abnormal vision that troubled all three of these patients, and ceased when their minds became interested in an emotion which was new and earnest.

CHAPTER XI

THE WARRANT FOR THE WORK

IT IS strange that there should be opposition, on the part of any physician, to the endeavor which is involved in the Bates method for the relief of abnormal function in the mechanism of the faculty of vision. It is easy to realize that anyone whose only calling is to sell lenses will be confirmed in the mental attitude consequent upon the conviction that artificial lenses are the right and the only relief for such conditions.

Physicians, however, are constantly relieving other abnormal conditions which are certainly analogous. The procedure in those similar conditions is to discover the cause and remove it. Cases of nervous indigestion; idiopathic insomnia; nerve-tire in a patient otherwise normal; neuralgic pains where no cause is apparent; a complaint called by the patient "nervous," sometimes extreme and distressing, are part of the cases of every physician engaged in general practice.

In such conditions the physician knows that the cause, or causes, of the trouble is a dysfunction in some part of that complex, interlocking mechanism of organs and nerves and chemistry, which is beyond the consciousness of the patient Whatever success he may have must be through the influence of the conscious mind upon that mechanism. Commonly that mechanism is the dominating force of the organism. This is a truth by which the medical profession is being more and more influenced in the practice of what is an art as well as a science.

It is worth while to follow this line of thought as far as it may be of help to the mind of the patient who is trying to learn just why, and just how, the method we are discussing can serve to correct difficulties in the function of vision. With that purpose in mind, I will call the attention of the reader to a few most important facts.

There are many functional conditions which are discussed by physicians as "psychic". To designate a condition as such is to say that it is caused by the direct interference of the mind. It may be that such interference of the mind produces an abnormal conduct of some function, or the interference may serve to correct a dysfunction.

Authentic cases are of record where an unexplained deafness suddenly disappears. There may be in evidence some specific outside influence. A woman who had been deaf for years, without any perceptible change in the visible mechanism of hearing, was shocked by the fear of death in a falling airplane. Her hearing was normal when the fright was relieved. One could multiply similar incidents.

Amblyopia is a condition in which there is poor vision up to the degree where there is no vision, when it is called amaurosis. These names are given only when no change is apparent in the structure of the tissues of the eye. In many of these cases there is no discoverable cause in any other part of the system. These conditions are sometimes explained by the statement that they are the symptoms of hysteria. But the definitions given for hysteria are only descriptions of abnormal functions—in other words, a recital of symptoms. The abnormal condition comes on usually without any apparent cause. It may even be present from earliest life. Sometimes it is relieved by the specific efforts of a physician. Often it disappears as it came—and it is not apparent why it came, or why it went.

Delving further into the field one finds records of positive results from specific efforts on the part of the patient, either under instructions or acting independently. A young woman, or an older man or woman, disturbed by some extreme emotion, may suffer as a result, most marked and plainly apparent

symptoms of mind or of body. The manifestations of hysteria are manifold, and in many cases are quite serious. They may simulate the symptoms that are typical of some specific disease, which is not present. There may be an apparent paralysis of one or more limbs. There may be some phobia—that is, some fear of a condition or a presence which is believed to be real. Such conditions may continue and become chronic and uncured for long periods. They are often cleared up entirely, under the treatment of a physician, or in some unknown manner.

One of my patients had an uncle in France who owned an inn. He was afflicted for months with a condition diagnosed as arthritis. He was often in bed, but was sometimes able to get down-stairs and sit in a big chair in front of his inn. It was always necessary, however, that he be assisted by two helpers. One day he was sitting in the sunlight as usual when a neighbor rode up with the information that a vicious bull was loose in the road nearby. Everyone else sought safety in a hurry. When he found himself deserted, he promptly left the chair and bolted up the stairs.

Blondin, a world-famous tight-rope walker, found himself crippled with a similar condition of his lumbar (back) muscles a few days previous to a most important public exhibition. He engaged a physician, but the doctor was unable to relieve the condition, and even warned him on the day of the feat that he would risk his life if he attempted to carry out his contract. But Blondin had so much at stake that he dismissed the physician and, with the pain undiminished in his back, determined to carry on. His performance was to wheel a barrow across a cable stretched over Niagara Falls. According to Blondin's own statement, he felt the pain until he had actually taken hold of his wheelbarrow and his balancing pole. He did not feel any pain when crossing the turmoil of waters raging below, while he was reversing, or while he was returning. But as soon as he had finished the marvelous stunt the pain returned, and he was again a cripple.

Suppose we consider for a moment the analogy between this most remarkable incident, and the report I have recorded elsewhere of a man fifty-five who broke by chance the glasses he had worn for nearsightedness for many years, and went without his glasses after the accident, and had vision that was perfectly satisfactory without lenses.

Blondin was a strong, self-reliant man. He had none of those sensory inhibitions which restrain most of us from considering the feats he had schooled himself to do. But he was confronted with a dilemma which was unlike any other he had met. The faulty chemistry in the muscles of his back produced an irritation which registered as pain in the specific receiving center in his brain. For help he took his sick muscles to a physician; but he received no relief. It thus became his necessity to make a decision. He knew the physician was right in his remonstrance that such pain might overcome his customary power over those muscles, and might even cost his life. But there was an emotion in Blondin's mind that the concerned physician did not realize. Failure to keep his contract meant so much to Blondin that, like the dying gladiator, who had to consent to death, "but conquered agony," Blondin brushed aside the intruder in his back, and marched straight on to victory. In other words, the emotion in his conscious mind was strong enough to suppress all other impressions. The pain could not register while his mind was filled with that thought. But when the triumph was accomplished, and the necessity had passed, the pain registered again, because the new, strong emotion was no longer in charge.

In the case of the man who lost his glasses up in the mountains, the mechanism was similar. He had planned with his friend for two years to spend those weeks together up in the grandeur of the wild hills. The lure of that quest was so strong that it would not be silenced. His emotion was different, but it was similar in kind to Blondin's. They were both "wants". His want was so strong that it likewise suppressed any question about discretion. His will demanded of his eyes, and that order changed the chronic habit of the visual centers. The power of his vision returned; and once he knew it, the truth was so strong that he held it fast, and his mind gave back to him the natural, normal sight which had been suppressed.

It is easy to see why these spontaneous cures are illustrations of the same psychological and physiological mechanisms as are exemplified in the method of Dr. Bates. The mind in one case acted spontaneously, outside of the consciousness; and in the other case—the Bates method—it was commanded by the determined wish and conduct of the conscious mind.

Among other reports found in medical books I remember that of a chronic invalid, an old woman who needed the constant help of a nurse because she could not move without assistance. One afternoon when the nurse had left her alone for a time in a country hotel, the building caught fire. When she found herself alone, and realized that she must get out without help or be burned, she walked out unaided.

These cases are illustrations of an emotion causing an impulse from the central control in the brain to take charge of an abnormal condition and correct the fault in the mechanism—and this has been done even where there have been changes in tissue structure, or a nerve or muscle habit for years. There used to be a sharp line drawn between organic conditions and functional conditions. The first involves some change in tissue structure. The second does not. It was written that though a functional derangement could be corrected, tissue which had changed into an abnormal state could not be changed back into its normal structure. The ground is broken there. The leading thinkers in the medical profession began by pointing out that functional derangements sometimes merge into tissue changes. It cannot any longer be denied that tissue changes do reverse, and change back to normal.

A patient, a graduate of a German university, told me that as a boy he had a bunch of warts on his hand, and they disappeared after he followed the instructions of a "Frau" in the village. An aged mother was being buried. The church bell tolled for half an hour, during which time he was to recite to himself, continuously, four lines of doggerel which proclaimed that his warts would accompany the spirit of the departed.

He remembers that he was faithful to her instructions. He did not lose a wart that day, and cannot give an exact report; but he is sure the warts were gone in a few days.

In answer to an inquiry, an official medical journal recently made a statement fully confirming such a claim. The procedure is described as a mental suggestion. The statement reported that men of high standing in the profession had in that way rid their own skin, and that of others, from warts, and that this had been done after medical treatment had failed. The statement explained that in order to be successful, it was necessary for the operator to have a conviction that the effort would succeed, and the patient, also, must have a distinct emotional attitude of mind, which would make him susceptible to the suggestion.

Over two years ago a report was submitted to the annual convention of the American Association for the Advancement of Science which was signed by four physicians who were on the medical staff of a foremost Eastern university. One of their number had been afflicted with a gastric ulcer that seventeen years of medical treatment had failed to cure. They decided to treat the ulcer by mental suggestion. In six weeks there was a complete cure that had, at the time of the report, lasted two years.

Following their success with the chronic condition of their colleague, the four medical men selected thirty cases of ulcers of the stomach, and treated them exclusively with mental suggestion. They reported a complete success in every case.

It is not hard to imagine how such a proceeding operates. In the stomach, meat is digested. The lining of the stomach is meat. That lining is not digested because a physiological function acts to protect it from such a process. That specific function is principally, perhaps, the presence of what are called hormones in the tissue, and is directed by the central control of the brain. When an ulcer is allowed to develop, one or more functions in that field act in an abnormal manner. Stomach ulcers commonly act in the manner called recurrent. They come and go; get worse and then improve; are present for a short time, or a long time. In typical cases the history indicates some internal cause or causes for the onset and the spontaneous recovery. The symptoms, like those of the doctor in this case, are often beyond the control of any medical treatment. But when some change occurs in the conduct of the central control, the effect is an onset of the ulcer, or return of the normal function, and cure of the ulcer. These four physicians gave their thirty selected patients instructive talks, in sessions, on the normal functions of the stomach. They had them relax in periods, with closed eyes, keeping their minds occupied with thoughts which impressed on the central control in the brain their confident expectation that it would correct the abnormal impulses sent out to the stomach walls. Since that central control dominates the

mechanism, it is necessary only to command its service. Success in that depends almost entirely upon the strength of the feeling in the conscious mind.

Certainly the beliefs of unusual healing, which have been held in all ages and all countries, are not based only on morbid imagination. There are many authentic records of such cures in our own day. A biologist who is a world authority on cancer reports the cure, by faith alone, of most serious functional and organic conditions. He cites the immediate closing of chronic wounds, the repair of diseased bones, the complete disappearance, in a few days, of lesions caused by tuberculosis, and even the deadly ravages of cancer. What he speaks of as records, are cases he has personally investigated, with the care of a veteran research worker.

Is it necessary to call attention to more illustrations, or more varieties of examples of the cures of abnormal organic as well as of serious functional conditions? At Van Nuys in California, a man with special talent has succeeded in piling up two thousand records of cases of many kinds of paralysis. Most of them came to him helpless after a trial of customary methods of treating such cases had ended in failure. He has given them new power, many of them with full normal function. His work is actually mental suggestion, carried out in a simple, direct fashion of personal instructions, which he calls education.

The writer referred to above, in offering his explanation of the cause and mechanism of those cures which are spoken of as miraculous, classes them as extreme cases of natural repair. He claims that the only condition which must be present is prayer. Even the prayer of someone who is present can effect the cure. "Prayer is the soul's sincere desire, uttered or unexpressed; The essence of a hidden fire that smoulders in the breast." But he speaks as a scientist when he states that such facts are of profound significance, because they show the reality of certain relations. The nature of those relations are still unknown, he points out. They are the relations between psychological and organic processes. They prove the objective importance of the spiritual activities. The study of those activities, he believes, has not yet begun. They will open to man a new world.

In this chapter I have tried to show that in the presence of all these established facts, it is a most reasonable procedure to endeavor to influence the visual centers in the brain. They are influenced to act in a normal manner when the mind has a normal attitude toward them. That is what is going on with most of the race—with all those whose eyes are acting is a normal manner. When the eyes act in an abnormal manner, the fault is with the same central control. It is not uncommon for dysfunctions of the faculty of vision to spontaneously recover from the fault. Since it is in evidence that the mind can cure a shrivelled, paralyzed muscle, and rout out of the body a tubercular or cancerous condition, what an incomparably simple proceeding it is to so influence that same mind that an order will issue for the mechanism of vision to behave in a normal way.

CHAPTER XII

SOME CASES THAT ILLUSTRATE

PICTURES sometimes help more than words to make clear a new and strange subject. The illustrations that follow are chosen because they are representative of different types of cases.

A. P., 15 years old, suffered an attack from poison oak which swelled his face so that both eyes were closed for some days. When the swelling disappeared, and his eyes opened, there was a dense, white opacity filling entirely the lens of the right eye. Four months later his parents brought him to me. His fancily physician had treated him for several weeks, and then referred him to an eye specialist. Four months of treatment, with drops in the eye and a bandage over it, had made no apparent improvement in the condition.

I was asked to remove the bandage and look at the eye, and say if I could cure it. Having explained that I could not do that while the patient was under the care of another physician, I suggested that they might have some special ophthalmologist give them an expert opinion on the unusual case, and then, if

they were not encouraged by his conclusions, they might return and let me endeavor to relieve the condition by treatment with the Bates method. They did consult two eye specialists in San Francisco. Both doctors reported that no treatment would help the lens; and their only suggestion was to have it removed by operation.

Thereupon, we began at once to treat the cataract. It was October, and Arthur had not returned to school, so he had the entire day to practice. He was encouraged into an active mental campaign of his own, instead of a helpless, passive state of mind. He was given a Snellen Letter Test Chart with instructions to spend time every day blinking softly at the different letters in accordance with the practice described. He was to lie quietly with the strong sun shining directly on his closed eyelids. He was told how to swing softly in a hammock; how to lie with closed eyes and listen to soft music. He was urged to have always in his mind a confidence that his eye would return to normal, but not to think of his eye. He was to occupy his mind with the techniques he was practicing, and forget himself, just as a violinist loses thought of himself when he gives his mind to his practice. No doubt his own work had much to do with his success. But it was obvious that the greatest help in his case was the sun. The first day he could look directly into the sun and did not even see light. I began at once to use a convex sun glass on the white of his eye. He learned quickly how to protect the lens by covering it with the lower lid. I focused the glass so it showed a small round spot on the white of the eye, and passed it rapidly back and forth for perhaps half a minute at a time. He then closed that eye while I used the same technique on his normal eye. This treatment with the glass I continued for several minutes each day. In a very few days he could not look into the sun at all because the opacity was rapidly becoming less dense. It not only lost the dense appearance, but also began to show spots on the margins of the lens where the opacity had disappeared entirely and the normal lens was plainly seen.

In three weeks, three-quarters of the lens was clear. The quarter which then remained became quite a study. It varied in density, it had a ragged edge, and it would always disappear entirely when treated with the sun glass—that never failed. It might return in five minutes, or it might not return for a much longer period. But there was another phenomenon which, to me, was even more remarkable. His family knew that often, when he awakened, there was no remnant of the cataract visible. It might be absent for half an hour or longer. But any unusual incident, or least excitement—for instance, the refusal of a permission, an undesirable errand, teasing by his younger sister—would flash it back. We had begun treatment in October. Arthur returned to school in January. There was only a small trace of the cataract left then, which could not be seen without a close inspection. For weeks he had been able to see as well with that eye as with the other. The remnant gradually disappeared entirely. Over six years have passed, now, and the lens is normal.

When I asked a friend of mine, who is an ophthalmologist, for a personal comment on this case, he replied that cataracts do clear up, without treatment, and more especially in children. Because such is an established fact, it seems to me quite reasonable, also, to expect cataracts to clear up under some method of suitable treatment. There can be no reasonable doubt that the use of the sun glass cured the cataract in Arthur's eye.

After four months under treatment without any change, the opacity in Arthur's eye began immediately to show an improvement under the method I used. It was not a mere coincidence. There was no bandage over his eye, as there had been before, and his family watched the progress daily. The consistent temporary disappearance of the lingering remnant of the opacity, whenever I used the concentrated sunlight, and its frequent temporary disappearance during the night, sustained the claim of Dr. Bates that cataracts can be caused by a mental reaction upon the muscles of the eye. The ultimate and permanent disappearance of the opacity was consequent upon the complete relief of the mind from such an unconscious tension. The tension itself was produced by the toxemia developed during the invasion of the system by the poison oak.

Dr. Bates described a demonstration, which he suggested could be carried out as well by any other research worker. He explained that if the eye of a freshly killed steer is held softly between the fingers the clearness of the lens can be seen at a distance of twenty feet. If the eyeball is compressed firmly between the fingers, an opacity will be plainly apparent. The lens will be clear, or opaque, accordingly as the pressure is released or applied.

Personally, I have had the same success in enabling other patients to secure great improvement in vision when their sight has been very much impaired by cataracts. But this case of a young boy was quite unique. It was obviously caused by an attack of poison oak. It showed an immediate change. The remnant would disappear completely, and stay away for half an hour or for a few minutes, and finally stayed away—for over six years now. It must not be forgotten, however, that there are authentic records of cataracts which have disappeared spontaneously.

V. R., 18 years old, had been troubled for several months with a distressing condition technically known as nystagmus. Her eyes rocked back and forth horizontally, in unison, rapidly and continuously. Her vision was poor. There was no pain, but there was a depressing, general nervous condition. Glasses had been prescribed for her by a well-known eye specialist in San Francisco months before she came to me, but no other suggestion had been offered by him. When the glasses secured no improvement, he protested that at least they freed her from pain. When reminded that she had never had any pain, he replied that if it were not for the glasses she would have had pain. Their family physician knew of the Bates method, and when the ophthalmologist failed entirely, he referred the case to me.

The causes assigned in the text books for such a condition are constant straining of the eyes, use of the eyes in poor light, disease or poison in the system. The theory offered is that there is a perversion of the center controlling parallel or parallel-rotary motion of the eyes; and there is no lesion of the muscles or the nerves controlling them. There is, however, no unanimity of opinion as to the way in which the perversion is produced. The duration of such a condition is uncertain. It is dependent probably upon the continuance of the cause of excitation. The treatment suggested, therefore, is the cure of any known abnormal condition, and more commonly, the use of some kind of lenses. There was no abnormal condition apparent, except the state of her nervous system.

This girl lived out of town, so it was agreed that her mother would bring her to Berkeley for one week as a trial, to see what improvement could be effected in that time. There was such a marked improvement that the case remained in my care.

My first procedure was to remove the spectacles, with the understanding that they would not be worn again. The treatment consisted of various Bates practices. She was occupied much of the day lying down with closed eyes, listening to suitable radio music, or phonograph records. She lay with her closed eyes directly in the sun, beginning with periods of a few minutes and gradually increasing the time. She was taught how to practice palming, and swinging, and the use of the Snellen Test Chart. It was not easy to change the extremely, abnormal condition of tension in the mind, and the strange habits that had grown on the nerves. But there was a consistent, progressive improvement in her eyes, and her nervous system also relaxed into a very good normal condition.

For many weeks after this patient's eyes had become habitually quiet, and her nervous system was relaxed and apparently normal, the old habit of the eyes would assert itself, frequently without warning. Sometimes the rocking would be mild and slow, and would soon cease. At another time the reaction would be more noticeable. I had opportunities to study her lapses myself, and also heard the comments of some who were familiar with her case, and with the manifestations of the condition. To me, it seemed quite apparent that the outbreak was always a reaction from a tension in the mind; and sometimes a connection was plain between some trivial shock and the immediate recurrence of the abnormal conduct of the eyes.

For instance, one day when she was in my waiting room, another eye patient came in, who had been quite familiar with the course of her recovery. The two had not met for several weeks, and they had a little visit together for, perhaps, twenty minutes. When I saw the second patient alone, after the eye patient had been in my office and left, she gave me quite a clear description of a slight reaction that had come and gone in the eyes of the young woman with nystagmus, bringing on gradually a slight, but apparent, return of the old abnormal conduct of the eyes. The rocking had continued for ten minutes before ceasing.

This second patient reported that when they met, her friend's eyes were quite normal, and she had been received with a cordial greeting, and for a few minutes there was no change. In a short time there

came over the first patient an apparent slight constraint, which was recurrent, being noticeable when the second patient was talking and being lost when the young woman was responding.

The second patient, being an old friend of the young woman, was so well acquainted with her affairs that she was able to interest her in personal matters. This relaxed the tension which had come unconsciously into the mind of the young woman, by arousing thoughts that brought pleasant memories and interesting ideas. The mind of the young woman had been dominated for a few minutes by a return of the old habit of mind, aroused by the shock caused by the appearance of the second eye patient. The new habit of the mind was strong enough to overcome the lapse, when it was assisted by the conversation of her friend.

A friend of mine, a physician, discussing this case, countered with the statement that there must have been a predisposition in the mind before it could react in such an abnormal manner to any cause of tension. The reply is, that every mind has its own predispositions. A predisposition is an attitude of mind. It is possible to change an attitude of mind. Most attitudes of mind are unconscious. Generally it does not help much to battle with them. In the statement of this case there was no discussion or reference to the cause of the abnormal condition. The mind was interested in a variety of thoughts, always objective and impersonal and pleasant and interesting, and always appropriately and helpfully opposing the abnormal attitude of mind which caused the strange conduct of the eyes.

If one is inclined to think lightly of this explanation of the mechanism of the onset and the course and the cure of this case, my answer is, that a renowned eye specialist failed to make the least change in the condition, and the method which I used corrected it. Whatever his understanding of the mechanism may have been, he did nothing but impose a pair of lenses, which, after a fair trial, proved worthless. It would be interesting to hear his explanation of the mechanism by which the cure was effected.

A young lady of twenty-two came into my office, for the first time, one day, at four o'clock. Her left eye had been crossed since her earliest knowledge. Her older brother had a crossed right eye; she had never seen him otherwise; and there were three other relations with crossed eyes. About ten years before her visit, a change had occurred, and her left eye became straight, while the right eye, instead, turned out in a marked degree. She was employed in the office of a large store in San Francisco, and is employed there now. She had worn glasses for several years, and could not do her work without them. She had recently secured a new pair of lenses, and though they made the figures clearer, there was a constant feeling of discomfort while she wore them, and her eyes seemed to resent them in various ways—for instance, in looking at objects not quite close up. She could not describe exactly how the change from one eye to the other had taken place—it just happened.

During the two hours she was in my office, I was not with her continuously. Sometimes she sat in another room and read some designated chapter, or explanation by Dr. Bates, or some thing I had written. I consulted her occasionally, or had her look at a 1,000 watt light. At six o'clock I saw that bar eye was straight. The change had occurred while she was alone in the other room for about half an hour. The eye has remained straight during the intervening three years, and she has never worn her glasses since. Her vision is good, both eyes are about even in power, and she has not paid any attention to them since the first few weeks after she came to me for treatment.

There is nothing miraculous about her case. In the standard textbooks on the eye it is reported that a crossed eye may change its position without any outside interference, or that just such a change may take place as occurred with this patient—the crossed eye becoming normal while the normal eye becomes crossed. Eyes may be crossed while open and straight when closed, or vice versa. In the books, just how and why that happens is left to conjecture. Why should it be thought remarkable that an influence can be brought on the mind in a deliberate, reasonable way to secure a result which the mind accomplishes itself, when it so determines, without any order from the conscious mind? That young woman had developed an attitude of mind before I talked to her. A close friend knew of cures effected, and had so impressed her mind that when she came to me there was a perfect confidence, and an actual expectancy, and all that was needed to consummate the change was the specific directions she must carry out.

W. C. S., a boy of 18, had worn glasses for eight years, could not do his high school work without them. With very little practice his glasses were permanently removed in a few weeks. He relaxed by lying with closed eyes and his mind at attention, occupied as continuously as possible with some designated idea, or series of ideas, thus excluding aimless trains of thought. He let the strong sunlight shine on his closed eyelids for an increasing period of time each clear day. He practiced blinking at the Snellen Test Chart, as will be described in a later chapter. During the intervening eight years he has taken his degree at Stanford University, had a scholarship in post graduate work, and for two years has held a position in the research department of a corporation laboratory. His sight is at least as good as the average normal, and he has never thought of wearing glasses since.

A boy came to me for treatment because he had seen the above-mentioned boy for two years with glasses on, and then for one year with them off. This boy was a very different type. I soon demonstrated to him that his eyes could be improved. He was able to see clearly at a distance, objects that could not be seen before, without his spectacles. One day, out in the open sunlight, his sight improved in a half hour, from seeing only the one hundred-foot line at a two-foot distance, to seeing the forty-foot line at a distance of ten feet. He complained, however, that he could not retain this improvement. He reported that when he practiced alone, he was not able to accomplish with his eyes the success he frankly admitted he had whenever he practiced under my supervision. The outcome was that his father refused to pay for my services, claiming that I was not curing the condition. The attitude of his father was a breach of faith, and I resented his statement that I was taking advantage of him, and claiming to be able to accomplish something which it was not possible to do. To my reminder about the cure of the boy that his son had seen daily for a year without glasses, he had only an evasive answer. I determined to see what would happen if I took his father into the small claims court in an effort to collect my fee.

The father appeared, fortified with a letter from an eye specialist who claimed that what I declared could be accomplished was an impossibility. My rejoinder was to submit to the judge seven letters from known, responsible persons, all of whom had been successful in the endeavor to secure good normal vision after having been obliged to wear glasses for years.

Of the writers of those letters, one man had worn glasses on account of nearsightedness for forty-five years. Another, a well-known educator, had worn her glasses for fifteen years, and took them off permanently with very little help. Another well-known teacher had worn glasses for twenty-five years, and like the previous case, began by leaving them off absolutely at once, and was able after three weeks of practice to go without them and without any further practice. The judge knew three of the writers personally, and when he had communicated with them, he concluded that I was warranted in claiming that it was not impossible to secure the improvement I had promised. He decided that my charges should be paid.

My purpose in recounting these two cases is to point out the importance of some effort on the part of the patient. The first boy was interested and faithful in his efforts to carry out the instructions given him. The second boy was the opposite. Just what practicing he did was problematical. His replies to inquiries concerning it were principally excuses. He was not reliable. Having secured his assurance that it was safe for him to go without his glasses generally, even in traffic, I secured also his promise to leave them off on the street. But I saw him more than once on the street with them on. One day when he forgot to take them off before he came into my office, I told him this. He promptly put them into the case, and put the case significantly into his pocket. When he departed it occurred to my nurse to look out of the window and watch him on the street. She saw him take his glasses out and put them on when he left the building. Few persons so deliberately break faith. But I have learned that a number do not give to the endeavor the consistent earnestness which the cause is worth. They are willing to accept a fine normal vision, but they have not a clear and strong conception of the necessity in their minds of an emotion strong enough to dominate their conduct and he an active force.

Mary S., 18 years, a high school girl, came at the close of school. She had been very near-sighted for several years. I saw her five times during seven weeks. There was a fine improvement in her sight from the first lesson. She told me there were several other girls interested, and they would come to me if she

was successful. None of them came. Nearly two years later two sisters came to me. The example of Mary had finally impressed them enough to make a try themselves.

They lasted through three lessons. One had worn glasses for some years. The other one had warnings that she would soon need them. The spectacle wearer was a slave to perfect marks, and quickly decided that she would not let a small matter like good eye-sight for life interfere with her ambition to keep her place on the imaginary line in the class. Her sister decided to leave her eyes to their fate—just because her mind never realized the meaning of what she was doing. So they bath have their poor eyes for life—and one has, or had, the "credits". But Mary has fine eyes for life. Worth more to her mind, infinitely, through life, than the foolish, and so often worthless, accumulation of dead marks.

A patient of mine, who had been a graduate nurse for years before she was married, had worn glasses for many years continuously. We relieved her of the spectacles between us, and her eyes have given perfect satisfaction without them for several years now. Without any help from me she taught her husband to discard his glasses, after he had worn them for forty-five years. He had begun to be near-sighted following a severe illness from scarlet fever when he was sixteen years old. His eyes became progressively worse, and for the previous ten years he had been unable to go safely in any traffic without the glasses on, although he could read the smallest type close to his eyes without the lenses. His relief came in a few days, and he did not practice any further care or method with them, taut simply used his eyes freely.

He was a busy man of affairs, with long hours and much work with fine figures, and there was the common concern that most business men were having during the first years of depression, and after one year his eyes faltered again, and he gradually resumed the wearing of artificial lenses. He wore them constantly again for one year. But his mind was never at rest. He could not cease thinking about his eyes. It happened then that we were together at the seashore for one week. He had to relieve his mind of the complex, and I listened for half an hour to a recital of statements which were more or less true, and which he was confusing into arguments against the use of the unaided eye if it had any difficulty in seeing. His principal obsession was the glaring light of the sun. He had never thought of the sun in that way before. He even dragged in accounts of accidents caused by glaring headlights at night.

I refused to argue with him, but secured his promise to spend a few hours daily, during the five days we had left at the shore, in the practice of the simple techniques directed by Dr. Bates. He was an earnest and fair-minded man. From the first hour that he gave himself freely to the purpose of testing again the value of the method, there began a return of his confidence in his eyes. He was like a swimmer in the water again after a lapse of years. Perhaps you have felt that feeling, as I have, and have lost all consciousness of the liquid you were in, and have reveled in the buoyancy of floating on your back, carried by the strong water. In that five days all the power of vision he had lost came back again, and more. It is seven years since those five days, and his vision today is strong and free.

Mrs. W. C., forty-five years, had been afflicted for over a year with a condition known as Iritis. It is a serious inflammation of the eye, which generally diminishes the power of vision, as well as being very painful. She had been under the care of a well-known eye specialist in San Francisco. The condition of her eyes had grown steadily worse, so that when she came to my office—because, to use her own words, he had "let me out"—she was so nearly blind that she could not leave her own rooms without being led. In that disease lenses are of no service.

Besides the customary practices of the Bates method, I used on her eyes a treatment that I have used on other eyes, a careful exposure to ultra violet rays. She practiced a great deal of exposure to the sunlight, generally with her eyes closed. I was able to secure such a fine improvement in the condition that in a few weeks she had very good sight, so that she did not need assistance, and could even read fine print.

She ceased to come to my office, and neglected the other practices which had been of such benefit to her, and was disturbed constantly by serious mental concerns, and this resulted, after a few months, in a return of the symptoms, but in a much milder form. In a few weeks her eyes were normal again. It seemed that the improvement was due to the treatment, because it began at once with the resumption

of the same method. She moved to San Francisco, and her eyes were in a perfectly satisfactory condition before she left. I am confident she would have returned for treatment if the symptoms had ever recurred.

Children should have an important place in this chapter, but I will not write about them here, because it is my belief that the salvation of their eyes is so important that I have devoted a chapter to the discussion of what is being done for their eyes, and what is not being done, and what can be done for them.

There are those at the other end of life, also, who have a claim. Some who are getting along very well with the help of glasses, might still be interested, like the fine old gentleman whose case I will now describe. He was eighty-five when his granddaughter told him what she knew about the work I was doing with the Bates method; and especially about a Mrs. Kinley, who came to me when she was eighty-three, with cataracts which hampered her sight so much that she was fast becoming helpless, and spectacles gave her very little assistance. She discarded the glasses at once, and had such fine success with the Bates method that she wrote me more than once, months later, that she could read and write, and could see to do whatever she wanted to, and was quite happy.

The gentleman, Mr. Burns, of Oakland, had worn glasses constantly for forty years. He was near-sighted, and was also troubled with astigmatism. He was getting along well enough, but when he heard of this opportunity he determined to see if he could correct the faults in his eyes. He began in a systematic manner to study the principles of the method, and to carry out instructions for hours every day. It was most interesting to watch him consider deliberately a statement which was new, and then question or comment, and then proceed to carry out the technique. It was his way of working with flowers, and the other interests which occupied his days. He was so absorbed in the mechanism of vision that he was not inhibited at all by a consciousness of his eyes. He very soon discarded the glasses entirely, and relieved himself of the dysfunction which had interfered with his sight for so many years.

This patient lived for two years after the return of normal power to his eyes. He never used his glasses again. His experience was a fine illustration of the control of the mind over the function of vision. His case is a contradiction also, of the theory of presbyopia, which claims that the lens of the eye begins to harden and lose its power in middle life, and even claims that for this reason the eye cannot focus on nearby objects when it is old. Mr. Burns could see small type closeup as well as he could see objects at a distance.

There was nothing remarkable in that. Such strong eyes at eighty and at ninety are in constant evidence. Some of the great artists of history accomplished their finest work when they were over eighty.

The different types of visual dysfunction have been offered as proof of the power of the mind to correct abnormal function in the mechanism of vision. The underlying principle of the method of Dr. Bates is the necessity of securing the alert and interested attention of the mind, when the eyes are not doing their work correctly, and the visual centers are at fault, instead of ignoring the mind and simply giving the eyes a pair of artificial lenses to work with.

CHAPTER XIII

FIRST PRINCIPLES OF CURE

DURING the ten years that I have been using this method, as part of my occupation in the routine of a general practitioner, I have found it the most fascinating part of my work. Generally it is gratifying. Sometimes it is quite disappointing. In a number of cases the results have been thrilling. There is nothing mysterious in the method or the techniques of the system. The reactions, like every other human experience, are determined by the different mental responses.

The principal combat is against the universal impression that the eye is a helpless thing—like a tooth, for instance. Skin can heal, an enflamed joint can become normal again, even a broken bone can unite by its own effort. But who ever heard of a tooth doing anything to get well, once the hard covering has softened and the toothache has registered a call for help? So naturally, when the eye begins to fail, and something must be done—well, who ever heard of doing anything to help the eye itself? Just buy it a pair of windows. No other idea registers in the conscious mind. As a sign of progressive, modernistic enterprise, the atmosphere now is full of warnings to beat the eye to it, and get a pair of windows before anything does go wrong—because naturally one ought to take it for granted that ones eyes, which are all right now, will certainly go bad pretty soon—and, besides, one looks more in the vogue these days with the latest model spectacles on display.

As a result of all this, when someone presents the strange and astounding proposition that it is actually possible for the ailing eye to get well, that is, to recover normal vision once it has faltered at all, the natural reaction, as I have found it, is to wonder how any sensible person could become possessed of such an idea. In other words: "a crank is an expert on a subject we are not interested in." To put it differently, even when the response is cordial enough, one is balked by the well-known human failing called inertia.

If it is possible to convince the patient of the simple truth that the eye, like every other part of the body, can get well—recuperate, recover normal function, get over a bad habit, see just as well as ever or better, under the same kind of treatment as the doctor gives to every other part of the body—beginning with that conviction impressed on the mind, the subject has already made a fine running start.

Next, it is good to develop in the mind a simple and clear idea that vision is a mechanism which consists, in part, of muscles that act on the eye, just like other muscles which control other functions of the body, controlling the heart and the stomach and even the blood vessels. Beyond the muscles is a system of tiny nerves which carry orders to them from the mind. In charge of all is a central control in the brain, which ordinarily acts in a normal manner, but acts sometimes in an abnormal way, just as the central management in any organization may usually act with good judgment, but sometimes acts in a way that creates disorder in the whole system.

With such a foundation, one has an attitude of mind which can realize that it is within one's own power to "comeback" to the old habit of seeing things right, and even to develop a new power of better vision than ever. This understanding helps the patient to think of the mechanism of vision in an objective way. One can lose the mental obstruction which is produced by the consciousness of an eye which is crippled. The attention can become so completely absorbed in the practice of the technique that all self-consciousness will be lost. One sees that best in the children. They forget themselves as completely as they do in playing house, or cops and robbers. When the letters they could not see begin to appear, they just thrill with the pleasure of it. One boy who had been to school some months, but did not know the names of the letters—by the modern system of education—could identify them, as he learned to see them one after another, and in three lessons could name the letters as well as see them! I trust I did not interfere with the process of his education; but we just had to name the letters for him, because he was being retarded with his eyesight by the confusion of trying to prove that he really saw the letters. The D was "Daddy", and the M was "Mama", and the C was "Cat"—but the R and the W and the rest were things he could not name.

Assuming that there is an active interest, it is necessary to guard against an added tension, caused by the concern to accomplish the unaccustomed endeavor. The techniques directed develop a relaxed state of mind and of muscles, when they are carried out correctly. But the patient must learn to practice them as a game. In learning to swim one must first learn to trust the water. I saw a fine swimming teacher start with forty young girls who had never been in the water, and on the third day I saw all but eight of them jump into the nine-foot end of the tank, four at a time, and ply their way across and back without the least fear. They each had a different technique, but they all reached an arm away forward, and grabbed a lot of water, and pushed it back behind them, and just kept on going. The remainder of eight girls could not get their minds off the fact that the water was water. In working with the eyes, one must succeed in distracting the mind from the acquired abnormal habit, by engaging the attention, and

impressing the mind at the same time with the necessity for working objectively-that is, thinking only of the details to be attended to. Above all, it must be repeated again and again, so that it influences the mind, that every practice in the method has the primary purpose of developing a relaxed mental condition.

A very effective way to develop a general feeling of restful relaxation is to have the patient practice a specific, habitual daily custom of lying with closed eyes for half an hour, and keeping the mind constantly occupied with specific selected thoughts that are pleasant and impersonal. One may imagine, make believe, that there is a soft and heavy and liquid feeling in the eyes, or in the muscle on the front of the arm, or in the back of the neck. Or if there is a symphony or organ recital or other relaxing program on the radio, one may imagine the performers or the orchestra leader or whatever the picture may be. That should not be a concentration, the better word is an exclusive contemplation. When carried out with care, this procedure produces a soft restfulness of all the muscles, and a feeling of languor in the mind. Unless it is in a dark room, it may be better to cover the eyes to shut out the light.

It is possible to secure some measure of the same feeling by closing the eyes at any time or in any situation. It requires always a complete exclusion of the customary automatic trains of thought—which dominate and interfere. For whatever period the mind is occupied with any chosen picture or series of pictures, the subconscious mind is kept standing at attention; and it will soon become a help, instead of a hindrance, in securing the relaxation that is sought. A young woman, lying on a couch in the dark, with no music, and no one present but her mother and myself, was kept constantly mindful by the soft repetition of the injunction to keep her mind on the muscle on the front of her arm. She was to make believe it had a soft, heavy liquid feeling. In fifteen minutes there was a silence for five minutes, and then she was asked to tell how she felt. She answered: "I feel just like a jellyfish. I don't know how a jellyfish feels, but that is how I feel." Her eyes felt soft, too. There was an improvement that evening in her near-sightedness which encouraged her so much, that in a few days her vision was normal.

It is a very worth while practice to make a habit of commanding a soft, relaxation of the muscles when walking on the street. The softness of the muscles, in ordinary walking, indicates always a relaxation of the mind, and this involves a relaxation of the tension in the eyes. When the mind is relaxed the muscles are relaxed; and when the muscles are relaxed, the mind has been relaxed first. If there is any difficulty in securing a feeling of relaxation in the muscles, it is a good practice to demonstrate on one leg by making believe it feels as though it were a rubber leg filled with water, and has to be swung helplessly in motion. From one limb the same feeling can be passed on to other limbs. These are illustrations of ways in which relaxation can be secured deliberately and specifically. Other expedients will occur to a mind that is interested. Relaxation is an absolute fundamental in this endeavor. The only further essential requirement is that the central control in the mind be interested, and so impressed, that it is constrained to give the necessary impulse to the visual centers in the brain.

All the treatments used in this ingenious system of methods are based on very simple principles. The simpler the directions, the clearer the mechanism is registered by one who is learning about a subject never heard of before. But if the new ideas are to really make any lasting and effective impression on the inner mind, the details that are necessary must be hammered home. The erudite and the ignorant each have inhibitions and inertias. There is a spot to shoot at in an elephant or a rhinoceros. I have sometimes found I lead been aiming at the wrong spot; and even had my game get away, and had to register a lost case, because I had fired with bad judgment at the mental makeup of the patient. It is a unique situation after all, and I am still trying to learn how to estimate what there is in each mind that may be my helper, and what there is that I must battle.

To illustrate, a young woman who had an apparently unconscious aversion to any sunlight treatment, had me puzzled until one day she volunteered the information that the negroes at the equator have cancer because of the hot sun. This is quite untrue, but her idea acted as a serious inhibition nevertheless. A man lust would not try the practice of "swinging", and I found out later, by chance, that he had fallen off a swing when a boy, and went to bed sick for several days. 'The fear of a swing had remained so strong all his life, that he still fears even the word, and connects it even with the soft swinging which is done on the feet.

There are always inhibitions. The customary ones are expected; but the peculiar ones are generally not apparent, and are always more of an obstruction. My training as a physician has taught me that it is difficult, generally, to get an accurate record from a patient. So I ask questions of each eye patient. When the patient, in this procedure, is to be the doctor also, the patient should read the chapters in the book which will teach the mind the questions to ask itself. A deliberate and honest analysis of the existing conception of the subject, as of the past, should be followed by a personal questionnaire on the attitude of the mind, now that the endeavor is about to begin.

Having recorded the above previous record and diagnosis, it is vital for the patient to study carefully the intent and the special details of practice in every specific technique that is undertaken. Commonly, for instance, a patient who is "blinking" at a letter to develop a relaxed condition of the mind, forgets the purpose of the practice, and blinks in such a constrained manner that a new tension is added to the old one; or swings with so much concern that the muscles are hard instead of soft. This will not happen if the patient has read and reread some of the previous chapters, and realized the simple facts under consideration. I am writing this, at great length it may seem, in an effort to anticipate and prevent mistakes I have observed. Working without a teacher, some will fail to remark discrepancies, and come short of, or delay, success.

CHAPTER XIV

THE CASE FOR THE CHILDREN

A FORWARD looking eye doctor, writing in an official magazine, offers a demand which makes a plain man wonder. His proposition, plainly stated, is to the effect that every infant should have its eyes examined. He implies that most of them have defects. He asserts that if these defects are not corrected in the first few years of early life, the eye will degenerate into a chronic incurable condition. His bold, bald finality is that, if glasses should be settled upon the eyes of infants when they are eighteen months old, well, then, it is the thing to do.

That writer protests against what he calls eye exercises as a substitute for glasses. He does not explain what he means by eye exercises. It would seem that his plan would deprive the eye of its inborn right to exercise its own function, and yield itself passively to the domination of the artificial lens. As he offers no corrective treatment for the eye of a child which is acting in an abnormal manner, and condemns the efforts of those who undertake to correct the dysfunction, his pronunciamento has the effect of offering an obstruction to even the thought of some constructive effort for the cure of the condition.

Suppose we consider deliberately some established facts which concern such a remarkable contention. The first fact that suggests itself is the impossibility of proving that any infant's eyes should have artificial lenses, or would be benefited by them. At that time of life there is nothing to be found in the eye that could determine its inability to develop a natural function. The text books offer several different theories as to the varying changes which seem to take place in the growing child's eye. These differing theories are all more or less contradictory. But there are some significant statements. One statement is that the changes in the growing eyes cannot be estimated in advance. These changes are so variable, so uncertain, so irregular, that it is plainly indicated there is no fixed rule as to what will take place, or when it will happen. Apparently the course of the progress, like that of every other human function or faculty, is dependent upon circumstances.

We are told that five per cent of children are born nearsighted. At six years of age there are nine per cent. At sixteen there is a larger number. During the period of rapid body growth, more and more cases develop along the road. Besides that, those who are myopic get more and more so all the time. But the developing myopia, so it is explained, will often change its rate, increase more slowly, or stop increasing for some years, and then start a new rate of increase. Moreover, the progress in one eye may differ from that in the other. That stated fact is most significant. The books explain that the development of myopia in children is the net result of two opposing forces going on simultaneously. The excessively curved infantile lens keeps flattening, and the eyeball continuously grows longer. By the time full growth is reached, so we are told, the eye has a normal optical system, but is absolutely too long. This excess of length is blamed for almost all of the refractive error. In some cases, so one ophthalmologist claims,

the front end of the eye is distended, and not the rear end, as most research workers claim. Such a radical difference of opinion necessitates some explanation of the different theories; but it is not offered. Meanwhile, one cannot help asking an explanation for the development of those eyes, which after all compose the great majority, that certainly do not grow more and more nearsighted, but do develop in a manner which eventuates in a good normal eye. Certainly environment, variable, suitable or the contrary, has to do with the great variations recorded. Is it reasonable to pay no least attention to that proved necessity in the consideration of the "wherefore" in this question of what to do for a developing eye?

The writer of the article referred to offers as a saving grace for his cases of defective eyes, nothing but glass lenses. But what warrant has he for saying that his glasses will persuade the defects in the eyes to reform? How many children who have glasses put on them ever have them taken off? One would not say there are none. But who would say there are more than a very few? That writer says nothing as to when his glasses will have saved the young eyes sufficiently so the artificial lenses can be permanently discarded. That is very discreet on his part. The common experience in those cases is that the glasses are changed periodically for different ones, with the explanation that 'stronger lenses are required.

Why should one expect glasses to correct any defective functioning of the mechanism of vision? Especially in a developing organ, why should one expect any artificial substitute for the function of the organ to develop the function of the organ itself? Such a proposition is contrary to all the science and art of modern medicine. It is exactly opposite in conception to the basic principles of the modern methods of education. The fact is that no claim is made by the ophthalmologists that glasses do correct the abnormal function of the eyes.

The artificial lenses are put on to assist the eyes. But when the artificial lenses refract the rays of light they do so with an unvarying precision. Meanwhile every dysfunction of vision varies constantly in degree. This means that there must be submission by the lens in the eye to meet the refraction made by the glass lens. Often there is conflict. In some cases it is serious. In any case there is a situation which is unnatural, and there are inevitable secondary effects consequent upon the submission of a human faculty to a constant outside interference. Some children show this plainly in their conduct. Very few of the laity seem to have any consciousness of this most important truth.

Madame Montessori conceived a method of developing the mental deficiencies of subnormal children which surprised the world. In her wonderful work she cured extremely abnormal mental conditions by encouraging the subnormal qualities of the mind to develop along natural lines into normal efficiency. It is by chosen impressions carefully made upon the subnormal minds of mentally defective children that the Montessori system secures such wonderful changes in the working of their minds. The incomparably simpler changes required to correct mere visual dysfunctions are easily accomplished by the same natural method of treatment. Very few would undertake to deny that statement. It is in accordance with the known physiology and psychology of the function of vision. It has been amply proved during many years. It is questioned only by those who have never tried it.

If one has interest enough to consider deliberately the case for those children who are having difficulty with their eyes, it will be necessary to lay aside whatever beliefs or prejudices or predispositions one has, for otherwise one cannot examine the evidence with an open mind. The unquestioning compliance of parents in placing spectacles on their children is sufficient proof of the impressions which have been produced on the public mind in the last few years. This strange new mental attitude is the result of the practice which has developed so rapidly in a short time. It is growing to seem natural to meet every trifling difficulty that children have with their eyes by the simple procedure of fitting them with spectacles.

We have gradually grown accustomed to seeing children with glasses on. As the ranks increased there began to appear very little ones among the small army. The relative number of children wearing glasses is trifling, as compared with those who do not. What about those children’s' eyes which refuse, as they develop, to follow the rules laid down in some of the literature on the subject? I mean those eyes which do not grow more and more near-sighted. Why the difference between the few who develop some dysfunction, and the great majority who do not? The theory of an inevitable progressive maladjustment,

predicated upon some unexplained distortion of the parts of the eye, takes no notice, and offers no explanation, of the eyes which develop into a normal maturity. Even more than that, the theory is contradicted by any eye which develops into a near-sighted eye, and later ceases to be nearsighted. There are plenty of such eyes in evidence. In my own practice there was a man who developed myopia at sixteen years, following an attack of scarlet fever. He wore glasses, stronger and stronger, until he was sixty-one. He then took them off for two years. After that he gradually assumed again the constant use of them. He took them off again, however, after a year, and has not worn them for the last five years. He knows that it is the attitude of his mind which determines the conduct of his eyes.

The problem involves the foundation of the method of Dr. Bates for the correction of abnormal vision and the education of the eye in the normal conduct of the mechanism of sight. This problem is discussed fully in other chapters.

The specific, practical, positive, and vital conception that is the theme of this chapter, and the thought which I hope to leave as an impression on the minds of all who read it, is that the eyes of children should not be left to the management of optometrists. They should be protected from the raw commercialism of any campaign which boasts openly that its purpose is to put lenses on every one of them. It is not true that for the faults of vision which many children have, there is no other known help than a pair of artificial lenses. It is not true that those eyes must develop into a permanently abnormal condition. The eyes of the great mass of children still develop normally. It has been fully proved that the different abnormal conditions are only dysfunctions, and can be corrected easily and permanently. We protect children, naturally and positively, from impositions upon their helplessness: how long will it be before we protect them from this imposition?

The developing eyes of growing children should not be left to any management which offers their eyes no other help than the domination of a pair of artificial lenses. Such lenses displace the natural function of the lens of the eye. That is obvious. The natural effects of such a substitution must be very plain. The eyes are not something apart from the remainder of the body. They should not be examined and diagnosed by the mere testing of what they can see, at the moment, at a certain distance. The foremost standard text book on the eye, the work of a world-famous Viennese eye specialist, explains with great detail that there is a close and absolute cooperation of the sense of vision with the other functions of the body. It explains that the functioning of the eyes is often impaired when the other functions or organs of the body are not conducting themselves normally. It explains that those other dysfunctions are the cause of the abnormal conduct of the eyes, and that when those other dysfunctions are corrected, the abnormal conduct of the eyes will cease. It is obvious that such an examination, and diagnosis, and treatment of the human eye should be carried out by one who is trained in the science and art of medicine. The problem should not be stated and dismissed by the mere routine procedure of having the patient look at some letters on a card, without any consideration of the real cause of the abnormal conduct of the eye, and without any consideration of the visual center in the brain which directs and controls the eye.

Although I realize the danger of repetition on this subject of spectacles on children, I am conscious also of a specific necessity. During ten years of this work I have been deeply impressed by the remarkable lack of attention given to the matter by the parents whose children are sentenced to the handicap of wearing glasses for the remainder of their lives.

My point is the thoughtlessness with which they accept, without the least question, the verdict that because the child now finds some difficulty in seeing things clearly, there is absolutely no other procedure in the premises but the adoption of artificial lenses. They are familiar with classes, private and public, for children who have different kinds of impairment of mental functions, and are familiar with the giving of medical attention to various organic and glandular dysfunctions, like asthma and diabetes and anemia. They are aware of the wonderful advances made in modern scientific medical treatment of every other part of the body. But they seem, in a strange manner, to be unconscious of the part that the eyes play for the brain. They walk into a store and let a man put a pair of glasses on their child, for the remainder of the child's life, and think no more about it, then or later, than when they buy the child a pair of shoes which are to protect his feet for a few months. If the reader thinks

that this is not a fair statement, let the reader try to prove, by simple personal deliberation, just what is untrue or unfair about it.

As a typical illustration of the contrasting attitudes of mind on the part of parents when their children are having difficulties with their vision, the following record is worth considering.

A girl from a small town in Oregon, with a relative living in Berkeley who was quite familiar with the success of the Bates method, was brought to my office by her mother two years ago last summer. When she was about four years old her parents discovered that her vision was at fault. Finally she was examined by an eye specialist, and was fitted with glasses for near-sightedness and astigmatism, before she was six years old. She had been wearing the spectacles continuously for eight years when she came to me, because without them she not only had difficulty in seeing, but also was subject to symptoms of discomfort, even nausea and headache. Her mother also had been wearing glasses for several years.

They remained in Berkeley two weeks, and that was the only period during which I had personal supervision of her. She discarded her spectacles at the first treatment, and has never worn them again. Her mother worked with her, and site, also, discarded her glasses immediately and permanently. In several cases I have noticed that a mother wearing glasses, while she was trying to make the child discard her glasses, has realized an embarrassment in the situation. I appreciated the spirit of that mother, and I am sure her attitude was a great help to her daughter.

Dr. Bates felt that it was not a helpful example to a roomful of young children to face constantly a teacher wearing spectacles. In my own work I have been told by a parent, more than once, that the child's teacher, wearing spectacles, was quite impatient with any indications of difficult vision on the part of any child in her class and that this attitude made the children quite self-conscious.

This girl was determined to be free of glasses permanently if possible. She improved from the first hour. Upon returning home, on vacation for some weeks, she practiced a great deal, exposing her closed eyelids to the direct rays of the sun. She found that this treatment was very helpful, and feels that this procedure was perhaps the most valuable of the techniques she used. She had been seen so long wearing glasses, that her appearance without them attracted real attention. Her vision was entirely satisfactory.

After she had been in evidence daily without glasses for over two years, a boy of her own age, who had seen her with spectacles for eight years, and was having trouble with his own glasses, finally decided that he also wanted to be free, and asked his father for permission to undertake the same treatment, pleading the example of his friend. His father refused to allow this, and the boy is now carrying on as best he can with the obstructing spectacles. I submit this story without any personal comment. It is just a rather extreme and conspicuous example of a mental attitude which is not uncommon. Instead of being indifferent to the truth that is evident in the success of the method of Dr. Bates, the parents of the girl determined to make the endeavor. They realized that no possible harm could come to the child's eyes, and their minds were open to the opportunity. In the three years that have followed those two weeks, the fruit of the endeavor has ripened.

It is not only that the girl has fine normal eyes, instead of weak eyes, helpless without spectacles. Her keen eyes are a help to her mind. There is no mental inhibition from the certain constraint which dependence upon glasses always causes. Besides this, there is another reward, one which is a source of tied happiness to the young lady herself, and to her parents and her friends. There are those who are persuaded, by the blandishments of sales-talk advertisements, to add a pair of modish spectacles to their adornments. They fancy it must be true that the glasses add to their attractiveness. In the words of the "ad", beauty puts on its glasses. In this particular case, there is a remarkable improvement in the appearance of the eyes themselves, and there is a new charm in the happy face which is not obscured.

Because of my interest in this field, I can hear, in the atmosphere of spectacles, the whisperings of revolt against the propaganda which plans, with open frankness, to fit all children with glasses. These whisperings can be beard in the medical profession. They are also among the voices in the popular

magazines. A prominent member of the medical profession trade a brief statement recently which is louder and plainer than usual. He said that he did not agree with those who expected the use of glasses to keep on increasing. He said he believed that the practice had reached its climax, and would soon begin to diminish. But such a radical reformation can come only through the efforts of the medical profession. It is not reasonable to expect it to originate with any element which believes that glasses are the only possible relief for all defective vision.

I have had more than one surprise recently, aroused by specific indications of the personal interest of practicing physicians. These men are beginning to realize that this most vital field of the work of the healers of the race has not received the critical, unprejudiced analysis which original workers in the other fields have given to their research work. Research means marching over again, examining the decisions that were made by other men. Strong men they may have been, leaders and pathfinders, but they had less knowledge to work with. They trade mistakes, too, some of them vital. In every other field of medical science such mistakes have been discovered, and they are still being discovered. In the field discussed in this book Dr. Bates was a research worker. He made discoveries; he found mistakes; he proved that the eyes of children can be taught to act in a normal manner. He showed that the way to help them to use their eyes in a natural manner is to have them try to use them right, and not to stop them from using their own eyes by making them use glass lenses instead.

It must be remembered that Dr. Bates was not an academician. He was a clinician. His laboratory was the constant procession of human eyes that he studied in a lifetime of daily work, in private practice, and in hospitals and clinics. For years he worked even in special Sunday clinics, to treat those who could not come during their working hours. It was in this work that he discovered the specific causes of the common dysfunctions of the mechanism of sight. He demonstrated the truths of his beliefs daily by saving children from being obliged to wear spectacles. He relieved children who were wearing them, so that they had fine normal vision without them. His patients came even from distant parts of the world. His system is being practiced now in South Africa, and in Australia, and in India as well as in Europe. In Germany there is an organization today which is spreading what is called vision schools. They are practicing the method of Dr. Bates, and give the credit for the discovery to him, and the published success of their efforts is arousing national interest there.

More recently this same work has been organized in England. The published statement, issued by the chief of the movement, from its headquarters in London, announces frankly that the principles of the method they are using are founded on the original discoveries of Dr. Bates. As usual, what originates in our own United States, is again being made use of in other countries, while it is being ignored, in a large way, by our own people. Such things must have happened in those early years. It was written: "A prophet is not without honor, save in his own country."

My acquaintance with Dr. Bates' work began when I read his book and put it into practice by freeing my own eyes from glasses, after wearing them for thirty-seven years. It is ten years now since I have worn them. A large part of my practice with the Bates method is with children. I have found it quite easy, as a rule, to relieve the difficulties children have when they are beginning. Many cases require only a few lessons. Children learn the method quickly when they are interested. If their parents have an active interest it makes the children happy, and it is a pleasure to watch their young eyes sparkle, and their minds thrill, as they find the letters coming out plainly, which they could not see a few minutes before.

Even those children who have worn glasses for years generally respond promptly to instructions, and very soon their eyes give perfect satisfaction without the use of the glasses they were wearing. Young life has a natural tendency to correct any dysfunction. Its tendency is to be normal physically and mentally. It often corrects automatically different kinds of abnormal functioning. Young minds are plastic. Their imaginations are vivid and direct. They have the power to make believe so that things become real. Their receptive and acceptive qualities are not yet burdened with the false conceptions and feed mental habits which inhibit free will and free mental and physical conduct in their parents. If one can interest their alert minds, it is easy to induce autosuggestions. They are eager, not indifferent. To have watched their response to the new delight of seeing things again with a vision that was lost, is to have an experience which is a perfect proof that the method of Dr. Bates is not a theory, but a reality.

It is untrue that for the faults of vision which many children are now developing, there is no known help but a pair of artificial lenses. It is not true that their eyes cannot be pre vented from developing a permanently abnormal condition, dependent upon glasses. The eyes of those unfortunate ones can be taught to develop with the same power as the mass of their playmates. We protect children, naturally and positively, from impositions upon their helplessness. How long will it be before we protect them from such a serious imposition?

In support of the statement I have made, and to show how really simple a proceeding it is to teach most children how to use their eyes so they will behave in a normal manner, I will report here a few typical cases in which that has been accomplished. Each record is a specific report, and every case is in evidence today.

Little Jimmie D., eight years old, was having such trouble seeing the letters on the board, and even seeing the words in the book, that the school nurse finally called in the evening on Jimmie's widowed mother, who was at work all day. She explained that he must have glasses if he was to keep up with his class. His mother had heard of the Bates method, and brought him to me one evening at eight o'clock, all the way from West Oakland. His bright little mind was interested in the Snellen Test Card at once. Even with a 200 watt light, over his head, through a translucent shade and ceiling reflection, he could not see the letters on the fifty-foot line at ten feet. But when I used a 340 watt light in front of a reflector, placed close to the card, the same letters became clear, and smaller letters began to appear.

This discovery aroused him into an animated attention. By questions and suggestions he was led to imagine the letters he was trying to see, and presently one after another new ones took shape and became real. It was a pleasure to see the thrill with which he looked up into his mother's face, as he stood with his back against her knees, when he became possessed of each new letter. In half an hour he owned three new lines. This was accomplished by the simple procedure of giving him a strong light, and getting his own imagination interested.

Specific directions were given for home work. He was to let strong sun shine on his closed eyelids for ten or fifteen minutes daily. There was to be half an hour of soft relaxation in the evening, lying with closed eyes while the radio gave soft music, and mother talked with him about his eye practice. He had a small card for near work, and a large card to be placed ten feet away. He blinked softly at the different letters, in the special way I showed him. He had practices for the school room, blinking at the writing on the board; and he had practices for objects in the street to and from school. Simple techniques, no straining, but a job to perform, like a game, which kept his mind in an attitude of attention to the power of his eyes. His eyes improved so rapidly that he had no further trouble in school; and soon his sight was a very good normal. I saw him in my office only seven times during a period of five weeks.

Albert C., ten years old, a different type, rather nervous. Three months before, because he was blinking and complaining of poor sight for some weeks, his father took him to an optometrist who gave him a pair of glasses. After a month with no relief, his mother went back with her complaint. This seemed to annoy the optometrist, who explained that she must realize the condition of her boy. He then told her that she must be patient for a long time, because her son's eyes had never developed, and he was nearly blind. Frightened, she had her husband take him to an ophthalmologist in San Francisco. That specialist claimed that the discomfort, and the poor sight, had developed because his lower eyelashes turned in, and this condition must be corrected first. He used a cautery on the skin a few times, to produce scars which he promised would contract the skin, and pull down the edge of the lower lid. This scheme was a failure, of course. There was no change after the treatments. The specialist had promised to give the boy more suitable lenses, after correcting the eyelashes; but when his father made a final inquiry about the vision and the glasses, he received the reply that the local optometrist was correct, and there would be no advantage in giving the boy any different lenses.

The parents had been waiting for this final reply before bringing the boy to my office. They had delayed the decision for a month. They felt that the eye specialist should be relied upon until they had his final answer. That is the history given to me.

An examination with the ophthalmoscope showed nothing unusual in his eyes. At his first attempt he read at ten feet the line he should have read at forty feet. He could not distinguish any smaller letters at that distance. In other words, he was really near-sighted. But he was not badly nearsighted. I did not concern myself about the diagnosis of undeveloped eyes. There was no excuse for such a statement. It was simply brutal.

That boy did not show much interest in the effort to cure his eyes. But fortunately his parents did. His mother was a great help. She made him practice daily. It quickly developed that the tragic situation conceived by the optometrist, and indorsed by the ophthalmologist, had no foundation in fact. What they may have thought is their affair. There was an improvement in his vision even during the first lesson. In three weeks he could read the ten-foot line at a distance of more than ten feet.

School closed then, and he went with his mother and his sister to the ranch of his uncle. For more than a month his mother secured a great deal of sunlight treatment, and insisted upon a regular practice daily of the different directed techniques with the Snellen cards, and other methods.

Two weeks after he had returned to school in the Fall his mother came to the office and reported that he could always read the ten foot line at fourteen feet, and he was having no least trouble with his eyes. This result was secured with a very poor interest on the part of the little patient. His intelligent mother demanded his attention, and that secured the result. Such an improvement might be called a development of the eyes. In the Bates treatments we think of it as a simple education of the eyes.

Max S., twelve years old, was told by the school nurse that he must get glasses. He was having some difficulty with the board, but not much. Finally his mother had a talk with the nurse, and she insisted that he must be fitted with glasses. That was when his parents decided to see if such a course could be prevented. After a few treatments, and about three weeks of practice Max was able to read the teas-foot line on the card in the sun at the full length of their front porch, which was fourteen feet. His mother then arranged with the school nurse to have a test of his eyes while she was present. Tested in the school room, at a distance of ten feet, Max was able to read all the letters on the ten-foot line, but one. Grasping at that one straw, the nurse maintained that she had now proved that his eyes certainly needed glasses. She even volunteered the warning that if he persisted in trying to get along without them, he would ruin his eyes.

At the request of his mother I called at the house that afternoon and made our usual test at the distance of fourteen feet. He had no difficulty in reading all the letters. Relieved of the tension caused by the plain opposition of the school nurse, his eyes worked normally. When school opened again in the Fall he had no difficulty with his vision, and I have not heard of him since.

The case of E. M., now a fifteen-year-old girl, is interesting and instructive. When she was about three years old, it was noticed that she was nearsighted. Before she went to school at six years, it was necessary to have her fitted with lenses. The glasses enabled her to see things better, but were so unsatisfactory that a different ophthalmologist was tried. The new glasses proved even less satisfactory, so her parents tried again with the eye specialist who gave her the first pair.

When this first ophthalmologist took charge of her case a second time, he informed her parents that she would have increasing difficulty with her eyes until she was eighteen years old. They understood this to mean that she would require new lenses frequently. In five years she had four new pairs of glasses. The last new pair were to replace a pair broken on her face by a basket-ball.

She never was able to see, with any glasses, the difference between a man and a woman at the distance of a short block. She was uncertain often, even about nearby objects, and was limited in playing, and in school exercises. This developed a noticeable embarrassment in other ways, even in familiar personal contacts, caused by the realization of her difficulties in seeing persons and things.

When she came to me three years ago, she was wearing the glasses prescribed after the ball broke the ones she had on, a short time before. She complained that these glasses always felt heavy, especially

the right lens. They were much stronger than the previous lenses, and tired her eyes. She was very cordial to a proposition that she find out whether she could learn to go without them. At the end of a week, during which she alternately wore the lenses and went without them, of her own choice she discarded the spectacles. She soon found that she could read and play with much less difficulty than she had experienced while wearing the lenses. For a few months she was favored with a front seat in the classroom. Her vision steadily improved in every way, and before long she could read everything on the blackboard from any part of the room, without any difficulty.

During the three years she has had the glasses off, her vision has steadily improved. She has no difficulty in seeing everything. Besides this, her mental attitude is quite different. It now has become evident that during the years she was wearing the spectacles her outlook upon everything was cramped and unhappy. From a pessimist she has developed into an optimist. Her relatives, and her friends have all remarked this. Her teacher was quite frankly interested in the novel experiment. She is now quite positive in her statement that her scholar improved in her vision, and in her work, and in her attitude toward social contacts and toward every aspect of her environment.

In this case the efforts of two prominent eye specialists were of little help, even in refracting the rays of light so that the child could see clearly. 4n the other hand, the glasses, so it seemed, quite disturbed her mental attitude. The promise of the ophthalmologist, that she would have increasing difficulty in seeing until she was eighteen years old was in keeping with some of the explanations recorded in books on that subject. She is now only fifteen years old. The future is still unknown. But in this case it seems fair to quote the words of Patrick Henry: "I can only judge the future by the past."

D. L., twelve years old, daughter of a physician in a town across San Francisco Bay, came to my office with her mother one year ago. Last spring her sight was normal. When she returned to school in the Fall she found difficulty in seeing the letters on the board. After a few weeks it became apparent that she must have some help. Her father sent her to an eye specialist in San Francisco, and she returned with a diagnosis that she was quite near-sighted, and must have glasses.

It happened that her music teacher was the sister of a librarian who had had difficulty with her eyes, and came to me for treatment. The sisters both knew of others who also had tried the Bates method with success. So the music teacher suggested that her young pupil come with her mother, and try the Bates method before she put on glasses.

The girl had an alert mind, and did not want to wear glasses. The first day I tested her eyes on the Snellen card, in a sunny room at ten feet, and found she could read, with either eye or with both eyes, the line that should be read at seventy feet. The line below, which should be read at fifty feet, she could not read at all. There were some other minor unpleasant symptoms.

After some conversation, I began by having the pupil look continuously at a 1000 watt electric light. She blinked softly, most of the time, and the light was placed three feet from her eyes. Following that she closed her eyes for five minutes, while I talked with her about the Bates method. When she opened her eyes she began to see the lower letters, finding them gradually, one at a time. I impressed upon her mind the necessity for eliminating the urge to see the letters. By sustaining an alert interest in her mind, with her eyes closed, or while she was looking at a letter she could not see, we managed between us to make her visual center respond to her wishes, and presently a letter which she could have seen perfectly a few months before, but had lost as an acquaintance, became visible again, because she had been encouraged to relax the strain in her mind. In twenty minutes she could read easily the letters on the thirty-foot line, instead of balking at the letters on the seventy-foot line. Her mother, a college woman and a doctor's wife, said: "That is a miracle." I answered: "No, it is simple physiology and psychology."

She did not return for over two weeks. She had been ill, and had not been able to practice. She could read the same letters, but had made no improvement. That day she captured the remaining four lines on the card.

Her home work was to let the strong sun shine directly on her closed eyelids for ten minutes twice a day, the time to be increased gradually, according to her experience and improvement. She was instructed how to practice on the letters of the large and the small Snellen Test Cards she was given. There were specific directions for practices to be carried out in the school room and on the street. There was a half hour in the evening, lying with closed eyes and listening to soft music. There were other special reminders.

I saw her once again, in a few weeks. She was quite happy, her sight was entirely satisfactory, and she enjoyed the practice. Her mother was grateful. Just another simple case. Relax the tension, interest the mind, encourage the spirit, show them what the eyes will do—if you treat them the way any other deliquent function of the system is being treated daily by the medical profession.

The last record I will mention, in this chapter, which is "The Case for the Children," has a vivid significance as an illustration of the menace to their freedom. There is a family of six. One parent and three of the four children, wear spectacles. The children are in their late teens; there is no prospect that they will ever be freed from the "windows". The second parent is disturbed by an apprehension. It is not that there is any want of good vision yet. It is that a fear is forming in the mind—a fear engendered by four spectacle wearers in a family of six. The latter half of that sentence is just my guess, of course. But the fear is acknowledged—the fear that there will soon be a fifth member in the circle. With five in the house wearing glasses, what chance will the youngest child have? Already the sixth vision had become so poor when school closed this summer, that the eyes could not read any letters on the fifty-foot line placed ten feet away. The spectacles were just as near to the eyes as that.

During the first hour in my office a considerable improvement in vision was secured. There were a few more visits, and one day the sight was good enough to read the ten-foot line at ten feet. There is no doubt that this child could have good normal vision, free from spectacles, with very little further effort. But the case has passed out of my charge. All that is left to me is the interest I have, which is to hope for the best, and I shall continue to hope. There is a further hope I cannot refrain from expressing. When I think of the wrong that is being done to these children, I can hear the echo of a plaint wrung out of a spirit that lived in the days of the Prophets: "How long, Oh Lord, how long?"

CHAPTER XV

THE SUN AND THE EYE

THERE is a strange, new public habit which is remarkable as a freak, but is no longer something to smile about. If it fastens itself upon us as a custom peculiar to Americans, it will become another new menace to the American eye. I am referring to the fad which is being indulged in by those who are wearing colored lenses to protect their eyes from the ordinary sunlight, in which they have always lived. Until now they have been unconscious of any painful or damaging effects. It is still the same old sunlight, without which they could not live, and without which their eyes would be useless. Whence comes this epidemic of, shall we say "sun-weakness", which is tagging a rapidly increasing number of victims, and how contagious is it, and what is to be the end? The source of the infection is not far to seek.

We used to see a few dark glasses on the street. They were worn by those who had some temporary or some chronic ailment of the eye. But now there is a flock of many-colored lenses, and not one of the wearers would claim any ailment. They all probably would resent such an imputation. Somehow they have become conscious of a soft voice telling them they must wear the colored spectacles. The plain everyday sunshine never hurt their eyes before. The word photophobia is the technical term for the condition; and that word means fear of light. This apparently is the explanation in most of the cases; because no other cause is to be found. In the standard text books on the eye, warning is given to allow colored lenses to be used only when necessary. It is further specifically pointed out that the use of colored glasses may easily become a habit, and such a habit would certainly be harmful to the eye.

Gradually the environment has accumulated a mass of high-powered sales devices. Windows and counters are piled with colored glasses. Everywhere are pictures which apparently are lithographed

photographs. Those who are posing are divided into those who are wearing tinted glasses and those who are not. All who wear tinted glasses have soft, happy faces; the unfortunates without them always have a distressed squint, as they try to see things right, in the ordinary sunlight without any colored protection for their eyes. One would like to ask the advertising manager how he explains the conduct of the rest of the race-meaning all those who are not included in his hand-picked posers.

One wonders where the claim originated that the normal eye is no longer able to look at a horse race, or a ball game, or a procession without distress unless it is protected from the sun by some tint of colored glass. Its origin is shrouded in mystery. But those who believe the claim are welcomed with a profuse assistance. The preposterous pretence is contrary to the known truth. The plain contradiction of it is the fact that almost everyone, old or young, is free from the delusion. An eye specialist, writing in an official medical journal, makes an emphatic comment on the harmful effects of shutting out the rays of sunlight from the eye, except on occasions when there is a rare, extreme glare. Those who use colored glasses commonly wear them in the evening, and wear them indoors. It becomes a mental habit; and, as that writer protests, it lowers the natural receptivity of the eye for sunlight, and injures the mechanism of vision.

The eye began, we are told, as a piece of specialized tissue which was responsive to light. That may have been millions of years ago. Always under the care of the sun, the eye has evolved into a mechanism which is so wonderful that its secrets are still beyond the knowledge of the human race.

The sun is to the eye what air is to the lung. The sun, which is such a life-giving necessity to every other part of the human body, is not really the enemy of the eye.

We know that the race goes today without this new device. Those who fancy that their eyes have a new weakness might ask themselves why they must deny their eyes the privilege which is the life of the other eyes around them. They will be wise to ask themselves if they are resigned to wearing colors over their eyes for the remaining years of their lives. Perhaps a little deliberate thought will make them conscious of the price they are going to pay for the light-hearted modishness they are indulging in as a fad. The strange, new pretense that the human eye must now be protected from ordinary sunlight, is so contrary to the truth, that one must seek for the reason, or the excuse, or the purpose, upon which the astonishing propaganda is founded.

The assortment of cheap, many colored, gaudy rimmed eye protectors rival the varieties of lipstick, and face paint, and cigarettes. The displays of the costlier lines illustrate the art of the commercial producer who knows that there are always victims who will pay ten times a reasonable price for the privilege of feeling that the glasses they are wearing are in the class called exclusive.

We are so accustomed to fresh air that we forget we are breathing it. There are those who do not get as much of the air as they might. Many are paying a tragic price for their neglect of the privilege of breathing all the fresh air they could, during the day and during the night. How many who are following the procession of wearers of colored glasses have ever realized in their lives that their eyes would be worthless with out the sun they are keeping out of their eyes now? Soon they will be able to have their eyes tested by a new device which is to decide exactly how unfit to go out into the light of day their own particular eyes are; and to be told by the same machine just which color they must wear, whether that is their favorite color or not.

Suppose we look at some established facts. It is natural to expect, from the history of the race, not only that the eye should live free and unhindered in the daily sunlight, but that when the eye is sick the kindly sun will help it to get well. Dr. Bates proved that this is true.

Those who work among the children in the poorer districts of London, lament the fact that the eyes of the children are suffering because of the many days they have there when very little free and clear sunlight is in their homes or even in the streets. The children of the countries where a real strong sun shines most of the year do not wear colored lenses; and there is no evidence that their eyes have lost any vigor or power because of exposure to the sun. The few that we see around us wearing colored

lenses have no more actual need to wear them than those of us who have never thought of doing so. The specialists who know, and who are interested in the welfare of the eyes, are saying that everyone who goes around daily with colored lenses covering the eyes is injuring, more or less, the health and power of the eye.

There is a further, and a very fine, value which the sun has, but is not commonly realized. Strangely enough it is recognized in every other field of the healing art. If it is properly used, the sun is a great help to any troubled eye—and absolutely in accordance with the laws that govern the health of the race. Civilized humans are becoming conscious again of a knowledge which seems to have been lost soon after the days of the Greeks and the Romans. They knew the value of the rays of the sun. Special exposures to the sunlight was a constant custom with them. It never occurred to them to protect their eyes from its harmful effects. But then, in their ignorance, they did not even know that it was necessary to conserve their sight by fitting their eyes with artificial lenses. It was only Nero, with his degenerated body and toxic chemistry, that used a little artificial lens to see better the butchery of the unfortunates which was provided for the amusement of the masses of morons who paid his bills. There is no evidence that any of the real men in those days needed any artificial help with their eyes, in their reading, or on the battle field.

Perhaps, to Finsen, more than to anyone else, is due the beginning of the new knowledge of the value of the sun in so many conditions of impaired organic function and specific disease. It was Dr. Bates who directed attention to its very fine value in the care of the eye, and as a help in relieving conditions of eyestrain and dysfunctions.

We know that the men who live out in the open, on the land and on the sea, commonly look into the sun freely. It is natural for them, because it is a natural thing to do in a natural habit of life. Sailors and plainsmen and mountaineers, Indians and Africans and Eskimos have not yet been informed that the sun is an enemy f their eyes. The little Indian papoose, riding backward o mama's back, generally finds the sun shining right in its eyes when it opens them to see its new world. In the years I have met over a dozen, right among the common people like myself, who astonished me (that is, the first few) by looking at the sun with the same ease and directness and comfort as they looked at the ground. Those who do that are not freaks. Those who cannot do it, have simply learned—or should we say inherited—bad habits.

My own eyes were as sensitive to the sun as any eyes could be. I do not even now look freely into the sun. But I do often look directly at it when it is high and strong, and continue for several seconds, while the glare softens, and the sun gradually shows to me its edges, until it has the same rounded appearance we see when we look at the moon. I have often demonstrated that when I hold up the upper lid of my eye, and keep the lens of the eye covered with the lower lid, and concentrate the sunlight with a convex glass held near the eyeball so that there is a small round spot of strong light showing on the white of the eye, I can flash it back and forth rapidly for a number of seconds at a time, and repeat the process a number of times without the least discomfort.

When I do that exactly right, the shadows of the tiny blood-filled vessels in the walls of the eyeball cast the daintiest interesting shadows on the retina. The terminating fibrils of the last branches of the vessels are the smallest lines the retina can register on the mind. I have demonstrated that following such a treatment my eyes—and the eyes of others so treated—have keener sight—or register better on the visual center. Such a treatment, carefully carried out, if it is repeated daily, very soon demonstrates a fine improvement in the power of vision.

To reply to this report with a blunt assertion that such treatment of the eye must be harmful, is not only an unscientific statement. Consciously or unconsciously, it is an actual obstruction placed on the pathway of progress in a field of research that is of the most vital interest to the race. Personally, I have used this treatment in many different cases for over ten years without a single unpleasant reaction. Dr. Bates reported using it for many years before I heard of it.

It is not difficult to learn how to use the sun glass on the eyeball in a safe and proper way. It must be held so that the concentrated rays from the sun strike at right angle on the surface of the eyeball. The

distance of the glass from the eye must be suited to each different case. There should never be any least unpleasant feeling. There will not be, if the glass is moved rapidly back and forth. The time on each eye should be only a few seconds without interruption. But some eyes may be treated for a duration of several minutes several times a day; and it may be found that the gradual increase in the total time of treatment will show an increasing degree of improvement. When held close to the eye, showing a small, dense hall of light, there is, of course, a stronger reaction on the part of the eye. Some eyes seem to take kindlier to a larger and softer circle, produced by holding the glass a few inches farther from the eye. It may be done, in especially sensitive cases, when the sun is not high and strong; but generally there are better results when the sun is strong and the glass is held near the eye.

In my experience a number have learned to use the glass on their own eyes, and this of course is sometimes an advantage, and makes one independent. Most will find it easier to have it done by another. The results seem to be prompter and better when the upper eyelid is held well raised softly while the glass is being used. But it is often more agreeable to the patient, especially in the beginning, to allow the lid to remain closed. Closed or open, always the patient must learn to hold the lens low under the lower lid. When practicing with the lid closed, when the lens is covered, one should see the shadows of the blood vessels, just as when the lids are open, only not so clearly. When one is conscious of a glare, instead of the blood vessels, it indicates that the lens is not in the proper position, and is receiving the light through the upper lid.

Although it is a fine practice, and always satisfactory, it is not necessary to use the sun on the eye through the sun glass. It can always be used with more or less advantage in other ways. Whether with the glass or without it, one must never forget that the purpose of the treatment is always relaxation. There must always be a correct position of the body, and a relaxed condition of all the muscles; so one must never sit so that the neck must be twisted in order to permit the sun-light to strike the eyes at a right-angle. Usually one should lie down, or lie on a chair or a couch with a slant.

One can sun the eyes by simply allowing the rays to strike directly on the softly closed eyelids, for a few minutes at first, and gradually for as much as an hour or longer at a time. This may be done more than once a day. It soon will be found that after a period of exposure with the lids closed, the lids may be opened for an instant, and the eyes allowed to look for a good flash, first into the sky toward the sun, and later on even right into the strong sun. The streak of color seen immediately after the lids are closed is never unpleasant, and the after-effect is an increasing feeling of relaxation, and an improvement in the power of vision.

It is a good plan to test the effects of sunlight in different ways. If one is free of prejudice and apprehension, the proof will be evident very soon. Make a careful trial or test of the eyes on the Snellen Test Card in a light room, measuring the exact distance at which one reads easily and clearly a certain line on the card. Compare immediately by hanging the chart outside in the strong sun, and then test the eyes on the same line at the same distance. Commonly one reads the same line some feet farther away, and a lower line at the same distance. And another time make a similar test, either indoors or out in the sun, before submitting the eyes to a sun treatment, and after the sun treatment lie quietly a few minutes in a quiet, dark spot, and then make the test again, under exactly the same conditions, and with an attitude of mind that is not anxious at all, but is free of inhibitions of any nature. The win is a true and kindly friend to the eye. It has been so for eons of time, and those who test it now will find that it is not the sun which has changed.

In a small book which is devoted to the subject of the conservation of vision, some of the methods which those classes are using are carefully described. In that book we are told that the constantly changing light emanating from a southern exposure to the sunlight is most trying to afflicted eyes, and that the light must be as nearly constant as possible. The answer in that book is a picture on the next page. It is a schoolroom with the sunlight carefully shut out. The shutters on one side of the room are closed tightly. There is no constantly changing southern sunlight in that room. But instead there is a positive element in the shadows plainly shown in the picture. The hook recommends artificial light, indirect or semi-direct. When the book speaks of afflicted eyes it refers to eyes with nearsightedness or astigmatism. To deprive such eyes of the natural sunlight is contrary to the teaching of the text books on the eye. To oblige them to read with the poor light shown in the picture in that book is certainly

making it harder for any eye which already is in difficulty. That book explains that by its system these children, so treated, need a year's special care in what it calls a sight-saving class. I have treated by the Bates method quite a number of children "afflicted" with astigmatism and nearsightedness. The children F have seen were never embarrassed by plenty of sunlight. On the contrary, they always could see better in good light; and if the light is improved by taking them out into the open sunlight, they almost always see the letters more clearly, and generally see two or three lines down the chart, smaller letters, than they were able to see a minute before in a well-lighted room. One would expect that more light would help a troubled eye every more than it helps a normal eye; and there are very few who do not see better in a better light, even with fine eyes. Anyone who will take the trouble to try the effect of better light, sunlight or artificial light, on eyes that have difficulty in seeing, will find that those eyes will find it easier to see, and that the more they use their eyes in good light, the sooner the eyes will develop an improvement in vision. In short, in the face of modern practices, in every human field, it is not likely anyone would undertake to defend the practice of depriving the human eye of good light—and the ordinary sunlight is just the same good light it has always been.

CHAPTER XVI

PALMING

THIS is a practice in which the hands are used to softly cover the eyes. The cheek bones rest on the heels of the hands, and the fingers cross above the eyes, with the eyes resting softly on the palms. The hands shut out all light. It is difficult to carry out this practice with a satisfactory result unless the elbows rest on a table in such a manner that all the muscles of the body are relaxed. The further effect is that such a deliberate and unusual gesture impresses the mind. To complete the procedure it is necessary to engage the mind continuously in some specific line of thought and not let it wander as it usually does.

Even with all light shut out, there will be the appearance of lights and colors and fragments, which seem to be seen by the eyes. These are illusions. They are produced in the visual center of the brain itself. To put it more simply, it is just imagination, since there is no light admitted to the eyes. Sometimes these appearances are persistent. Occasionally they are quite vivid. In other cases they are not pronounced, and they may fade promptly. When there is no least stimulation of the optic nerve by light rays, the visual center of the brain should show no reaction, and there should be a perfect blackness.

When there is no tension in the mind, the field will be black. One can command the mind by keeping it attentive to the field that appears, and expecting the blackness to come, which is proof that the mind is in a normal condition of relaxation. If one has an urge to eliminate the fragments in the field, the effect is to prevent relaxation. But there must be a firm, earnest confidence, and a specific desire which keeps the mind intent.

The more habitual tension there is in the mechanism of vision, the more intense will be the illusions which appear and persist. When there is some unusual disturbance of mind or body at the moment, there is even more difficulty in securing the required relaxation. It is true, however, that some persons, even with extreme abnormal conditions of vision, secure a most satisfactory relaxation quite easily. That is because they occupy the mind so completely with the practice they are carrying out, that all other thoughts are thus prevented from intruding and distracting. Want of success is always caused by the fixed habits of the mind. Consciously or unconsciously the patient is allowing an intrusion of thoughts to distract the attention. This distraction is a direct interference. If the mind is earnest enough in purpose, it will become conscious of the interference and brush it aside.

One sees a perfect black only when the mind is completely at rest. The more at rest the mind is, the deeper the black. When one sees an area of black in the field, it is likely to in crease. With proper technique one may improve the blackness until the field is completely black. There may be floating spots of pure black. There may be dull gray areas. There may appear different colors instead of black—just the fancy of the mind. If one continues to see red, or yellow, or other colors sharply marked, it is better to be satisfied with these colors as they come, instead of combating that picture, and to keep the mind occupied watching the different colors. A good plan is to imagine in the field a small patch of

white, such as a piece of white paper. If such a white patch is seen, when secured intentionally, the background of the field will probably show quite black. Proceeding further, one may imagine in the white spot a black letter, for instance, an O. When one can imagine a black letter in a white spot already imagined, the letter will be blacker than the background on which one imagines the white spot.

When there is special difficulty in clearing the field which is seen when the eyes are covered, some other practice will probably be helpful in attaining the degree of relaxation necessary in order to see a black field. For instance, one may use the memory of a black object to assist. Blink softly at some familiar black object placed where the color is most pronounced, then close the eyes and watch for the image to appear. By looking at the object for some minutes, and then keeping the mind on it for some minutes with the eyes closed, alternately, sooner or later the object will appear clearly when the eyes are closed. This is called an after-image. The successful outcome may take quite a while, or it may develop promptly; the result depends upon the exactness with which the mind carries on the process. When the object is seen, black and clear, with the eyes closed, one may proceed to palm as directed above, and the field will probably appear black.

There are two factors operating in such a practice. There is the impression of black on the mind, and the relaxation which has been secured by the game one has played with the black spot. It will hasten the success if one uses what is called central fixation, and imagines one spot on the black object to be blacker than the rest of the surface, ignoring with the mind the remainder of the object, One can practice changing the spot on the object to another area, or even changing the contemplation from one black object to another black object. To change is sometimes a relief from monotony; but the longer one practices with the same spot, or the same object, without losing an alert interest, the more vivid the reaction, that is, the more perfect the after-image. This is true of any practice in this method. To continue the technique longer, if it is properly carried out, will develop a progressive increase in the degree of the result.

This technique, or practice, called palming, is one of the clearest and most impressive illustrations of the mechanism and the value of this method for relieving the abnormal condition commonly called eyestrain. One must realize that palming consists essentially of an attitude of mind, and that the details of the procedure are simply expedients which facilitate the shutting out of distractions from the mind.

It becomes more than a negative procedure as soon as one calls upon the mind to imagine, or make believe, the various conceptions which can be used in the practice. It is a very simple idea to impress upon the mind that one wants to see a small white patch. In the technique of psychologists it is a common practice to persuade a patient to develop in a muscle a sensation of soft languor, and then to have a feeling that the arm is so heavy it cannot be lifted. It is just as easy to have the same mind order the vision center to picture a patch of white, and then to make believe that there is a black O on the white spot. A designer of dresses, an architect, an artist, a leader in any field, is seeing things in his mind, just as literally, as a common habit.

A patient whose eyes were almost useless because of three different types of defects in vision, was distressed by the prospect of inability to retain his position. The developing cataracts were the culminating interference with his vision. He had been told there could be no relief until they were what is called "ripe" enough to be removed, and his lenses replaced by glass tenses. Having been instructed how to palm, he practiced it intensively for many hours with little interruption. His earnestness and persistence so influenced the condition of his mind that his sight became a very good normal in twenty-four hours, and continued normal. This case reported by Dr. Bates, was unusual, but I can report many cases of improvement that are equivalent. The commonest difficulty is the want of a vivid conception of the simple mechanism of the process involved, and the next in order, perhaps, is a lack of the fine determination that constrained that man to keep on demanding success, hour after hour, until his courage and patience were rewarded.

The practice of palming was designed by Dr. Bates as an expedient which is simple and easily carried out, and has a direct effect on the vision center in the brain. He believed it to be, perhaps, the most effective of all the techniques he suggested. I have found that even children can understand what it is necessary to do, and they often have fine success in seeing a very black field when their eyes are

closed. Dr. Bates even suggested that the measure and the degree of the blackness which is imagined when the eyes are closed may be used as a test of the degree of relaxation secured.

When a sufficient degree of relaxation has been secured, it will be found that the eyesight has been improved accordingly. There may be flashes of clear vision which are replaced by the same old want of sight, or there may be a progressive improvement in the conduct of the eyes. I have personally experienced some fine thrills when lines of letters have appeared with a vivid clearness that was startling. Others have reported being astonished by the same revelations of power in their eyes, which they could not have imagined. Letters and words appeared blacker than the ink, and they stood out with a vividness never realized before.

There is nothing unreal or unnatural or miraculous in such an experience. It is simply the result of interesting the active and sympathetic attention and cooperation of that part of the brain which has charge of the mechanism of vision. There can be no doubt that millions have a constant power and vividness of eyesight that is unknown to most of us. This is true of the savage, and the plainsman, and the man of the sea, who see plainly what most of us cannot see at all. The same is true of the artist who reads the lines of the face and the form, and the color and beauty of the picture which his sight enables him to reproduce so the rest of us can be helped to imagine something of that which to him, is an open book.

In the practice of palming, several factors serve to assist the endeavor to secure a special condition of mind. We speak of the condition as a relaxation. It is, however, a positive mental attitude. But it must be impersonal and objective some pleasant contemplation which enlists the interested attention so completely that one forgets self entirely and becomes absorbed in the subject. This unusual gesture facilitates, as well as the darkness; but the paramount element is the complete domination of the mind by the idea in charge.

Each mind finds its own natural line of thought, and some will try very different imaginary pictures. Since the vital element in the techniques is the degree of exclusive attention which is given to the specific idea that is to occupy the mind, it is imperative that no other thought be allowed to merge into the process. It is easy to think that one is giving complete and undivided attention, when actually the mind is only half-hearted in its effort, and the greater part of the opportunity is lost.

Suppose we undertake to make believe we are swinging in a hammock. I have questioned some who agreed to that expedient, and found they could not tell a detail of the proceeding. They could answer only that they just made believe they were swinging in a hammock. Those who really do it, can describe the hammock, the short rope that held it to the house at one end and the long rope that held it to the tree some feet away. They can describe the pillow, and the cord they pulled on to keep up the slow swinging which produced the soft drowsiness that was so restful. I have even been told how they climbed into the hammock, and how they later woke up and were amused to find that they had fallen asleep.

Suppose we imagine, make believe, we are going to drift down the stream in a canoe. Let us begin at the float by looking the canoe over and deciding just how we will lie. Let us then carry out the proceeding by stepping carefully into the canoe, with the same deliberate care one should always use. No one familiar with the conduct of a canoe would share the close attention necessary to every move, with any other thought. I have seen a few incidents where even one familiar with the requirements of balance and movement have failed to give the attention the canoe demands, and have demonstrated their carelessness by a spill.

Now let us lie quietly and float lightly down the stream. If the mind forgets the canoe, and wanders to some other subject, at that moment it stops carrying out instructions. The conscious part of the mind, I mean, stops obeying instructions and allows itself to be misled; and right then it forfeits the advantage of having the subconscious part of the mind help in the proceeding, instead of hindering, as it commonly does. But if one watches the water, and the shore, and the sky, one keeps the mind intent and active on the side of the endeavor. One imagines the details of the scenery, observing specifically a house, a boat, a rock, a tree, the hill, the sky, the turn in the stream, the opposite end of the canoe. If one

answers that it is not possible to do this, I know that one has not really tried. One has not held the idea. One has not been earnest enough in purpose. One has not learned what his own mind will do for him, even in his first efforts. If the feeling is strong enough to persist continuously for thirty minutes, with a quiet determination, the subconscious part of the mind will become interested in the new adventure, and will reveal to the adventurer something of its power. I have explored a little into that new country myself, and others who went farther and found more, have confided in me. As long as one keeps the conscious mired occupied with any impersonal, objective idea, the unconscious mind is at the command of the purpose implied in the idea.

It is a great help to remember the way a little girl plays alone with her dolls. As well as she knows that it is all make-believe, her conversation proves how perfectly the autosuggestion works. Her mind is not hampered with confirmed mental habits. It is simple and direct. With a strong, primitive impulse she gives her whole mind to the idea, and no hampering doubts or reminders interfere with what she is doing. That is the subtle meaning in the sentence: "Unless ye come as little children, ye cannot enter the kingdom of heaven." The cures I have seen occur in a few minutes have all been accomplished by a profound and positive conviction acting on the control center in the mind.

It is necessary to forget the eyes entirely, or to think of them objectively, as one thinks, for instance, of a sprained ankle, or a cut finger. There are no mental reservations with those. We think of them as we would of some other person's cut finger, or somebody else's sprained ankle—just do this or do that with it, as one does this or does that with any other predicament.

There are many different lines of thought with which one can interest the mind in an endeavor to secure an abstract condition of mental relaxation. Each mind has its own predispositions and aptitudes. As illustrations, the following practices may encourage original ideas better suited, perhaps, to individual students.

While palming, imagine the soft rolls of water lapping the sand on the seashore. When the water is seen, picture a large rubber ball, black or red, bobbing on the rippling rolls. Always in motion, the ball will slowly recede from the shore. As you see it in your mind, it must recede farther and grow smaller, until finally it is lost in the hollows of the swells, and you do not see it any more. If the mind is given with feeling to this interesting experiment, the ball will seem very real, and all other thoughts will be excluded from the field.

Imagine a dog romping and swerving on a large lawn. See him stand, with head up, facing you, asking you what you think of his speed and grace. Make believe a fly is crawling over a large pane of glass in front of you, reaching a corner and starting over again to find a path with no obstruction. Picture a cat racing up a tree trunk to a low limb, and standing there with back and tail and hair raised, daring the dog to come up and see which eye she will put her claws into. Look from the cat to the fool dog, trying to stand on his hind legs, and yelping "coward" at the cat for not staying on the ground, even if he is four times as big as she is.

If any of these suggested techniques, practices, efforts of the imagination, are to be of value, they must be carried out with a will to win. Beginning with a conscious feeling of soft relaxation in all the muscles, put into them by the will of the mind, the same purpose must pay close attention to each detail in the procedure, and not be satisfied until some specific success rewards the close devotion and enthusiastic expectation which will be aroused if the spirit is right. When one really works that way, the conscious mind is actually demanding, and it will secure, the help of the inner mind. All these simple requests, the ceaseless activity of that inner mind can grant in marvelous fullness, if only the spirit of the worker dominates the mechanism.

CHAPTER XVII

CENTRAL FIXATION

THERE is in the retina, the film of the eye, a spot which is the area of maximum sensitiveness. That spot is right at the center. It is a small circular elevation which is known as the "macula lutea" (yellow spot.) In the center of that spot is the "fovea centralis', a depression of darker color. You will remember the cones, nerve endings which have a much different and more complex function of registering than the rods. The cones occupy this spot to the exclusion of the rods, and they are longer here and closer. When rays of light fall on this spot they are contacting the most acutely receptive area of the retina. When rays contact the retina outside this spot, the objects from which those rays are refracted are not so exactly perceived. The farther from this spot the rays are contacted, the more the sharpness of the visual perception decreases. This means that an eye with normal vision sees best at only one small spot. Whatever is outside of that small spot is not seen as exactly, and the farther outside that tiny area any spot is, the poorer the impression is on the retina. This faculty is known as "central fixation."

This habit of the normal eye has several advantages. Durst, it is easier for the eye to focus on and pay attention to a very small area, instead of trying to see equally well a large surface in the same instant. Second, when the eye gives its undivided attention to a point instead of a large area, it sees the point so perfectly that it is ready instantly to leave for another point. Working that way the eye does not tire. When it does not work that way, and neglects to have a point of central fixation, it is called eccentric fixation. In this abnormal condition, the vision is very poor, and no single spot of the retina is uniformly employed to fix with, so that fixation is uncertain and unreliable. The normal area of most sensitiveness is lost, and the power of vision is impaired, sometimes quite seriously.

It is not easy to realize how infinitely quicker than thought the images are transmitted to the brain through the retina and the optic nerve. To see even a small letter, the eye must see all the outlines of the letter, and likewise all the letters in a word, and so every word on a line, as one reads rapidly down the page. The child begins by making the letters each time into a word. The mechanism of sight soon learns to adjust and save effort. There are those who can see and register so fast that they read a whole page, seeing every word, in a period of seconds. Such eyes have perfect central fixation.

The significance of this is that the loss of central fixation, in any degree, means loss of power of sight, and this loss is present in every condition of abnormal vision. This abnormal conduct of the eye is caused by a tension in the visual center in the brain. By relaxing that central tension, the central fixation of the retina is renewed. The relaxation is secured by the attainment of a condition of central fixation of the mind. This is accomplished by realizing the fault in the mechanism, and enlisting the mind in the effort to correct the dysfunction.

If one would impress on the mind the effects of a marked degree of eccentric fixation, it will be worth while to make a specific effort to see every part of an inch square close to the eye. Such an experiment, if one does it carefully, demonstrates how unnatural it is not to confine the focus of the eye to one tiny spot. If carried out earnestly the experiment will cause actual pain. The endeavor to effect a cure of the abnormal condition is to do just the opposite to the above. Ascertain first how fine, or how poor, a definition your eye makes when you test it for central fixation. When the central spot has lost something of its finer sensitiveness, it will be found that one can look at a point and find that he sees another point just as well, or even better, than he sees the point he is trying to confine his focus to. Some other spot on the retina sees better than the normally most sensitive spot. But this always means, not that the other spot has improved power, but that the retina has lost power in all of its surface, and is disturbed in its functioning.

The remedy is to carry out a series of tests, calling upon the central fixation function of the eye to recover its power. One can select two objects, for instance, two red balls or two black balls, or two lighted candles, or two objects, one round and one square, and make exact comparisons. Confining the glance to one, study how clearly, or not, the other object is apparent. Test also with a letter of good size at reading distance, and with a large letter at ten feet. Confine the focus to one side of the letter, and study the appearance of the other side. One will probably be surprised to find, when looking at the

top of the big C on the Snellen Test Card at ten feet, that the bottom is actually clearer than the top of the letter.

It can happen that one will look at the top of a capital L on the page, and find that the bottom is certainly clearer, and reverse so as to look at the bottom of the C and find the top clearer.

If one will keep the mind attentive, and continue the practice as a game, it will gradually develop that the point focused at will displace the other point more and more until the conditions are reversed, and the eye is working normally. This may occur in a few minutes, or it may require considerable attention. The result depends entirely on the conduct of the mind. Central fixation of the mind means an attention which is so close and exclusive that no other thought is allowed to distract. Emerson understood such a conduct clearly when he said: "The hero is the man who is immovably centered." He meant that the man's mind was so impressed with the conception he had of the endeavor he was about to make, that not even the most intimate emotions of his heart could find a place beside that consciousness. With the proper degree of purpose, and an alert attention to the demonstration, one develops an auto suggestion in the mind, the mechanism involved in the function of central fixation is stimulated back to its normal conduct, and the vision is improved.

Eccentric fixation is a symptom caused by strain. It is only a symptom. Whatever procedure relieves the strain will correct the fault. Naturally the most direct method is to work with the function concerned. Having first demonstrated that one can look a certain distance away from a spot and see it better than when the attention is focused on it, one can gradually reduce that distance, until finally the eye will see the spot best when looking right at it. Beginning with the different sides of a large letter, the practice should be directed at a smaller letter, and finally a period can be selected, and it can be demonstrated that whichever side of the period is focused on, the opposite side will be less clear. When that is accomplished it always can be demonstrated that the vision has improved. Such an improvement may be only temporary at first; but with interest and patience, it will be found that an improvement in the function of central fixation is a most necessary and a most satisfactory procedure in the recovery of good normal vision. Above all, the faculty of central fixation protects the eye from abnormal fatigue, and from other sensations which develop when the eye is in use, even when there is sufficient power to work successfully without the use of glasses. Central fixation is fundamental and the most important quality of vision. When the eye has perfect central fixation, it has perfect sight.

CHAPTER XVIII

SHIFTING THE CENTRAL FIXATION

SHIFTING is the name given to a technique which is of great value in the effort to relieve any unnatural tension in the mechanism of vision. The practice is based on the habit of the eyes. When acting normally the eyes are shifting, constantly and instantaneously, the point of central fixation. That means that the eyeball itself is in constant motion. The attention of the visual center likewise is shifting to meet each change in the focus of the eyes.

To visualize even a small letter, the eyes must receive rays of light refracted from all the parts of the letter. It is plain that one cannot know the shape of any object, its angles, and curves, and colors until one has focused on its outlines. This necessitates the constant motion of the eyeball in vertical and horizontal directions. That motion is so slight, as a rule, that one is entirely unconscious of it. Generally it can be demonstrated by the ophthalmoscope, because that instrument covers the eye being observed, and the other eye is moving, and the ophthalmoscope shows that the covered eye is moving in unison with it.

A letter, or a word, or any point, may appear to move in different directions; and with a normal eye this can be observed sometimes, with just a little attention. That is because the eye is moving in the opposite direction from that in which the point seems to move. It is worth while to fix the eyes on a letter, and then shift the focus abruptly to the left or the right side, or to the top or the bottom. The letter will seem to move in the opposite direction. This can be demonstrated with a word, or with a line, or with any small object. In a dark room with a soft light on a small object, it is easier to prove the truth

of this. Sometimes the demonstration is facilitated by moving the head back and forth in a short range, while looking straight ahead, and finding that very soon the object seems to be moving, and not the head. Conversely, if one selects a point and demands of the eye that it continue to hold the focus unmoving, there develops what is called a stare. A strain is quickly felt, and if the focus is not shifted, the point will blur or even disappear. If the conduct of the eye is not normal, it may not move so rapidly. With the ophthalmoscope, the movements are seen to be slower and more noticeable.

On the bottom line of a Snellen Test Card there are fourteen letters. At a distance of ten feet, one seems to see the fourteen letters at one glance. But it is necessary for the eye to make four shifts to each letter. In a mere fragment of a second there are seventy shifts, and the eye and mind are unconscious of them. When one looks at a moving picture for instance, to encompass the flashing changes over the area of the screen involves a number of movements on the part of the eye, which it is not possible for the mind to realize. When the mind and the eye are functioning normally, all of this is accomplished with ease.

To consider for a moment, in passing, the constant motion of the eye muscles which is involved in this necessary changing of the position of the eyes, is to realize the falseness of any method, or claim, which involves practices designed to strengthen the eye muscles. From birth, those muscles have been in constant action and do not need any extra work. Further, the eye muscles act automatically, under specific impulses from the mind. What is called imbalance of the eye muscles, meaning a want of coordinated contractions, can have only one explanation—it must mean disordered nerve impulses. Whatever the procedure, to correct abnormal impulses sent to muscles, it is necessary to exert an influence on the control center in the brain.

Constant, minute, instantaneous shifting of the eyeball is a necessity for normal sight. The visual center must likewise function, outside of our knowledge, quicker than thought. The received impressions must be considered, thousands of them—in a moment of time. Each conception must be interpreted, sometimes deciphered and an adjustment made. When the eye, or the mind, does not match the necessary speed, the function of vision falters. The eye "stalls"—we might say—it hesitates, and instead of shifting, it stares, continues to look at the same spot. That causes more or less blurring of the image, or failure to see. But the fault, in these cases of eyestrain, is not in the eye. The eye is only an end organ, and the eye muscles likewise, are only automatic instruments taking orders. It is the orders which are wrong. It is the central control in the visual center which is at fault. When one realizes that established fact clearly, it helps very much as a beginning of the endeavor to correct the dysfunction. The process of correction is essentially very simple. It is necessary, however, to enlist the earnest and undivided attention of the central control of the whole mechanism. In other words, one must get the mind to give the practice at least as much undivided attention, for instance, as is given by sixty or eighty thousand football fans watching the twenty-two demi-gods who, for three months, are having their "place in the sun."

To make the conscious mind aware of the presence and the value of this habit of the mind, different practices are offered, and individual patients may find some more helpful, in their particular case, than others. A simple procedure is to draw a small circle on a large square of white paper, and fill it in with black ink, except one tiny spot where the white paper is not covered and stands out in contrast as a white period. Throw a good light on the period, and keep the mind occupied exclusively with that period. Blink softly at the period for half a minute, then close the eyes for half a minute and keep the mind on the white spot. Soon an after-image will appear when the eyes are closed. If one can do this in a dark room, with a 300 watt light backed with a reflector ten inches in diameter throwing a spot light, while the eyes are behind in the dark, it will facilitate the result in many ways.

When the visual center has become familiarized with the white period, it will be well to make a circle three inches in diameter, and have two such white periods in it, two inches apart. Focus on one of the periods, and ascertain whether the other period is less clear, or just as clearly seen, or seen more clearly. Close the eyes for a minute and then focus on the other period. If the period focused on is always seen better than the other, the central fixation is normal. With proper care, it is possible to demonstrate whether such is, or is not, the case.

Whether the above be demonstrated or not, it will improve the sight to imitate consciously the unconscious shifting that the normal eye performs. Such a practice rests the eye, and encourages a normal function. If the period shifted from is seen better than the period shifted to, it will be necessary to practice with two periods more widely separated. Ink periods on white paper will serve for this. When the distance is found at which one of the periods is lost when focusing on the other, it is a good practice to flash the glance back and forth rapidly until the eyes feel rested, and one gets the illusion of a swinging on the part of the periods. The distance between the periods can then be reduced gradually. One guide for this is the fact that the illusion of a swinging on the part of the periods is still in evidence. As the improvement in sight continues, the test can be used finally between the sides of even a small letter. It will be in order then, to see a swinging or pulsating movement of the letter when there is no conscious shifting of the eyes.

In difficult cases, it may be necessary to use two lights for the practice, or two different objects, a sufficient distance apart. In some cases, it facilitates the improvement to practice on points close to the eye, and gradually increase the distance from the eye. It is always helpful to palm the eyes for a few minutes or longer at first, and then palm a short time frequently during the practice. It is not well to shift the focus too rapidly at first, and the shift should never be more rapid than two or three times in one second.

It is a good practice to select two letters on a line and shift the focus back and forth between them. When the eyes have demonstrated, for a few minutes, that the letter being focused is always clearer than the other letter, it will be found that the letter focused will be clearer than it was at first, and the letters will each seem to move, as the eyes change, in the direction opposite to the movement of the eyes. Following that practice, one can work on a single letter, and demonstrate that when focusing at the top of the letter, the bottom is not as clear, and vice versa. If one looks at a spot above the top, or below the bottom, the whole letter will appear less clear, because it is out of focus, thus impressing that a correct focus is normal. When the eye becomes accustomed to such a practice, the letter will appear to swing in the opposite direction, as continuously as the movement of the eye, and the letter will be seen clearly during the movements. The ink of the letter will soon appear to be blacker, and to stand out more boldly.

When any letter, perhaps a larger and heavier one, is easier seen than some other one, rest the eyes and encourage them, by focusing the plainer letter, and then shift to the letter which is not so clear. Alternating for a few minutes, the obscure letter will generally become clearer. When a large letter at a distance is not clear, it will help to focus on a clear letter nearer the eye, and then look at the distant one. Such an alternation will soon enable the eye to see clearly the obscure distant letter.

The eye is relaxed at infinity, meaning that it stops straining often when it simply looks at some object at a great distance, and does not try to distinguish. It is possible to do this, and still focus on some point. The corner of a building, the top of a hill, the large letters of a sign, a distant automobile in motion, all will serve to rest the eye, and at the same time hold an attitude of central fixation in the mind. But there is to be shifting, between distant objects or from distant points to close points.

The object of shifting is to imitate the habit of a normal eye, and secure rest by changing from point to point, instead of staring at one spot. When any particular practice does not produce rest and improvement, it is because the strain is not being relieved, and some other practice should be tried. In addition to the rest secured, the action involved calls for a positive attitude on the part of the visual center.

When one has proceeded successfully from a comparison of larger letters, or objects, or lights, and from distant to nearby points, the mind has become interested and aroused, and it will begin to assert itself on the positive side. The imagination will be quickened by the memories that is, the deep impressions secured by the alert attention of the mind itself. It is possible to develop an improvement which will enable the visual center to demonstrate that focusing on one side of an ordinary period will make it appear clearer than the other side of the period, and even shifting from one side to the other will make the period appear to move in the opposite direction each time the glance is changed. Even if such results are not secured, or before they are secured, any deliberate and thoughtful effort to follow the

instructions given for various practices will promptly demonstrate an improvement in vision. Improvement may be immediate, or come more slowly. It may be permanent at once, but it is more likely to attain that condition after repeated efforts.

CHAPTER XIX

SWINGING TO RELAX

WHEN I explain to patients that swinging the body gently in a half-circle, with the eyes closed, is generally a very effective way to relax, they almost always are surprised at the idea that such a practice will help the eyes to see better. Some find it a great help, and always begin any period of practice with ten or fifteen minutes of swinging.

The first requirement of any successful technique is that the attention be completely occupied with the thought of what is being done. The very act of swinging, when it is correctly performed, involves that specific objective attitude of mind. The tension in the eyes and the mind is relieved because a condition of relaxation is produced in all the muscles of the body.

Standing with the heels well apart, and the toes turned out, and the eyes closed softly, the body is rotated with an easy rhythm in semi-circles from right to left and back from left to right. It must be a soft, even roll, with the idea in the mind that all the muscles are as soft as cloth. The position of the feet insures an easy and perfect balance of the body, and the curve in the swing keeps the weight poised over the feet, so no effort is required to correct the balance. The head and neck work in perfect unison with the body, so that the head may swing only a few inches in each direction, or may swing so far to each side that the face will point fully to the right and then fully to the left, and the body will time its motion to meet the movements of the head.

When the head goes to the right, if the muscles are to remains relaxed, the left heel must be allowed to leave the floor, because the left line from floor to neck will be longer; and when the head turns to the left, the right heel leaves the floor to match the position of the head. It is a further help to allow the arms to swing around while hanging limply at the sides. There must be a soft feeling in the muscles of the neck, and the head must roll as if limp on the body. The eyes are to take an intimate part in the movement by rolling softly to the outer limits of the orbit in each direction. This free roll of the eyes is easier to acquire if they are kept open at first, until a consciousness is established, and the sensation registered and remembered, so one will know that the eyes are in action and are relaxed.

To secure the full effects of this practice, the whole body must be dominated and coordinated by an attitude of mind. This can be accomplished by giving undivided attention to the conduct of all the muscles, including the muscles of the eyes. But it must be an objective attitude. A concern about correctness induces a tension instead of a soft relaxation. A violinist, or an organist, or any expert performer, is not any more concerned with observation of the muscles than the runner or the gymnast. The whole body of those experts is dominated and stimulated and educated by the enthusiasm of the mind. If one is walking leisurely toward a point, and suddenly remembers that the car is due at the corner, there comes to the conscious mind no thought of the feet, but the muscles all change their conduct, and instantly the limbs are propelling the body in a run.

I once saw a picture of an operator showing a cripple with a paralyzed limb how he was to try to move the limb. He demonstrated with his own limb. He was communicating a conception to the mind of the cripple. The perfect unison with which two partners in a waltz move in rhythm, is controlled by the thoughts of each. All very simple. But I have found that most of those who begin to practice a swing for relaxation, are obstructed by their bewilderment of mind, which causes a stiffness of their muscles. I found this reaction in myself, and conceived the idea of humming softly, as one dances to music. The melody that suited me best was a few bars of the "Merry Widow Waltz" tune. Gradually, I learned to soften the timbre of my voice until it was almost imperceptible, and I found that this relaxed the vocal cords, so that with a few minutes of practice, I was frequently able to carry a note an octave higher than I could reach when f began.

Swinging with the eyes closed, slowly and in perfect balance, for fifteen or twenty minutes, will develop a feeling of softness, and is found by some to be their best method of relaxing the eyes. It is possible to add to the swinging the very helpful addition of shifting. Facing a corner of the room, with small objects or pictures along each side, blinking the eyes slowly, and looking always straight ahead, the eyes will shift in passing from one object to another. There must be 1u a fixed idea that the mind is not paying attention to the objects as they pass the eyes, but that the eyes are looking softly into the distance. Another method, when there is a long distance outlook from a window, is to look softly at the scenery while swinging and blinking, and let the eyes shift constantly from the different points in view.

There is a method of swinging the head, while seated comfortably, and blinking the eyes softly. One may hold the first finger of the right band six inches in front of the face and six inches to the right of the eye. Close the left eye and blink the right eye, and rock the head back and forth, looking always straight ahead. After one or two minutes, close the eye and hold the head still. Repeat, alternating, until an afterimage appears, of the finger and the hand swinging back and forth in the opposite direction to the rocking of the head. Practice the same way with the left hand and the left eye, the right eye closed. Continue for fifteen or twenty minutes. This sometimes gives a better result if one is facing a window, or sits facing a good light in the evening. Strong contrasts are more impressive on the eyes. A method that has a similar effect, is to look softly ahead, blinking the eyes and holding the head still, while the elbows rest on the body, and the hands, closed except the first finger straight up, are rocked back and forth in front of the face, so that they cross leach other and return.

In that procedure, the fingers are shifting across the line of vision, and the effect is to relax the eyes by the passive change of central fixation. The eyes in that procedure are shifting with the moving fingers. One can use any small object the same way, a pen handle or a ring, by passing it across the line of vision rhythmically, while the eyes blink softly and look directly ahead. A helpful practice is to roll the head back and forth across the partitions of a window, especially the small panes of a leaded window, while blinking the eyes. A good test of the success of any of these practices is the appearance of the after-images when the eyes are closed after a few minutes with them open.

It is helpful to remember that swinging or swaying, when the eyes are open, is another way of shifting, that is, moving the central fixation from one spot to another, with an added value in the relaxing effect of the soft swaying movement. There are different techniques which can be practiced, to secure these two effects. One can devise individual efforts. A piece of chain, or rope, or cord, or ribbon. hanging at a given distance, less or more, in front of the eyes, with a background of light, or a background selected—a Snellen Test Card, a picture, a window frame, a white sheet or a black cloth, likewise placed at any given distance back of the hanging cord, or what not, or back of a tall thin object placed on a table half way between.

One can place three Snellen Test Cards, three, six and nine feet in front of the eyes, or use home-made cards say twelve by sixteen inches, and paint on black letters of similar sixes. They should be suspended on upright strips or hung on strings stretched across the room, and placed so that they almost overlap. Stand so that when the head is swayed with slow rhythm back and forth, the eyes softly blinking, the cards will seem to overlap and to show the clear between them, according to the direction the head moves in. Pick the same letter on each of the cards, and watch for it, and ignore the other letters. That will facilitate the apparent movements of the letters in the direction opposite to the way the head is moving. Close the eyes in periods, but continue to sway, and watch for the letters to appear as after-images. Practice with either eye closed, or with both open. Practice while sitting, and using a pen or pencil with a book for a background, holding it still while the head moves, or moving it while the head is still. Whatever the details of these practices involving swinging or swaying, the effort is to have the object under observation move back and forth across the line of vision so that it is alternately seen and then not seen, as it goes in a direction toward the right and then back toward the left and out of sight. If, with the eyes closed, an after-image is not produced, there is some fault in the technique.

CHAPTER XX

HOW MEMORY HELPS VISION

MEMORY is an aid to vision. There are many reasons for this. An impression on the retina is interpreted when it reaches the brain. The correctness of the interpretation depends very much on memory. Trained inspectors, in any field, are skilled largely out of their experience, which is their memory. It is important to keep this in mind always. For one reason, such a habit will develop an attitude of attention, and lack of alert attention is responsible for a great deal of impairment of vision.

It will be instructive to make a personal test of this statement. For one week make a continual effort to look, with care and thought, at every object of interest. Study for a moment some one of the features on any face you select—just an eyebrow, or a chin, or the point of the nose—or go over the different lines on the face and search for some revealing characteristic. Select a small spot on the garment. Always pay attention to a small spot only. Follow the observation with a minute of deliberate consideration of what you saw. In looking at a large letter, let the eye follow the lines of the letter, instead of looking at the mere bulk of the letter. Upon occasion do the same with a small letter. If you are near-sighted, select spots just within your easy vision; if you see easier at a distance, work at that limit. Forget your eyes—just as you forget your ears when you listen. Use your mind. Be attentive, and fair minded, and ponder the results. "You'll be surprised."

But there is a further consideration which is specific and most important. When the memory is able to recall impressions of any kind, it indicates a certain degree of mental relaxation. The more perfect the recollection, the more perfect the relaxation. That this relationship exists, can he positively demonstrated. If the eyes are closed and covered, so that all light is excluded, and one can recall perfectly a melody, or a fragrance, or a taste, or a sensation of touch, it will be found that in the visual center there is a picture of perfect blackness. When no light rays enter the eye, the visual field should be black, because it is empty; that is because no stimulus is coming in through the optic nerve. If, however, the field is occupied with fragments of coloring, it will be found that the memory does not recall past impressions. The mind must be perfectly relaxed if it is to have a perfect memory—one of these conditions is a test of the other.

The memory is not dependable as a test, except for the degree of blackness. This is why memory of black can be used as a test, and as a method for improving the vision. There is what is called muscle memory. It is a nerve habit, by which a muscle is given a suitable impulse or order at exactly the right moment for some special co-coordinated movement. This is absolutely a mental reaction. Muscle memory is what enables dancers, and acrobats, trapeze performers and others to develop the ability to accomplish their marvelous performances; and enables the various technicians to become so skillful.

Developed mental habits are kindred psychological reactions. Likewise, a developed memory for black, when called upon, can produce specific reactions, in the mechanism of vision. One can learn how to recall, with closed eyes, a memory of black in the visual center. When this becomes a habit, it is possible to estimate the degree of mental relaxation, by considering the blackness which becomes apparent when the eyes are closed. One can improve the judgment as to the actual blackness seen when the eyes are closed, by comparing that blackness with the blackness of a small spot as seen on something black. A large black letter is a good model, but any real black object, or a soft real black cloth, or a black shoe will serve for comparison.

One can learn to carry the memory, for instance, of an ordinary period. The smaller the area the better. But it may be easier to begin by using for practice a larger circular black spot, and proceed systematically, by sewing a piece of a black letter, half an inch in diameter, onto a large square piece of soft white sheeting, and blinking at it as practice, in a soft light. For half an hour, less or more, one should blink softly at the mark for twenty or thirty seconds, then close the eyes for thirty seconds, and simply expect to see the period, while the eyes are closed; so continuing the alternating practice.

The significance of black, when the mind has learned to see it as a small period, is mainly as a help to relaxation. Thought of in the way the eye sees black, such a developed habit becomes an attitude of the

mind which has a favorable effect on the mechanism of vision. In the chapter on palming, the value of the black field is described. If one practices intensively the technique of palming, it will facilitate the accomplishment of learning how to see a period in the mind whsle the eyes are open. Such a thought is so new that it is hard to realize. It is all very simple however, and of a kind exactly with mental processes which are of common practice. The black period is seen in the mind. The simple technician, and the finest expert are doing just the same thing in their field. The typist who is reading her notes while she touches the different keys quicker than thought, is carrying in her mind the exact motion that is necessary to make the particular letter strike the paper. The diagnostician that I saw demonstrate to a group of physicians his power of passing his hands softly over the chest walls of a new patient and then describing the changes that had taken place in the tissues, was carrying vividly in his mind several mental images that were just as real, and just the same in kind, as the image of a small period. All of these mental habits represent impressions made on the brain cells, and recalled, just like a name or a date or a fact, whenever the mind needs them.

In any system of memory some such expedient is always involved. One of the practices suggested as a help to remembering names, is a habit of visualizing, when the name is given, some imaginary peculiar appearance of the person named. If one at the moment the name is heard will attach some mental image to the person, if the effort is earnest enough, that unusual and peculiar memory will serve as what is called a reminder; but the main advantage will be the better impression made at the time because of the alert attention of the mind. To recall the name by remembering the special mental picture utilized at the moment, is a process similar to recalling a mental picture of a period when one wants to produce a relaxed condition of the visual center in the mind. We are all familiar with association of ideas. But it takes a little deliberate thought to realize and remember that we see in our brain, and that seeing a period is a mental process, just the same as seeing any of those mental images we are so familiar with.

This developed memory of a period sometimes leads to a trifling confusion in the beginning. There are cases where the relaxation secured improves the sight so unexpectedly that the surprise instantly disturbs the new relaxation, and the letter which came vividly into view is lost again in a flash. One must be reassured promptly by the proof received that the eye can learn to see the letter always, because it has given evidence that it has the power to see it clearly once. A little deliberate thought will prevent such an incident from interfering with a progressive improvement. I have never found any difficulty in convincing a patient that such a flash is a warrant, and a promise given the eye. I mention it here, because it has been the cause of confusion until the unusual phenomena was explained. It is not easy for one not familiar with the mechanism of vision to realize how or why an eye can have a flash of unaccustomed fine vision, and slip right back again into the old condition. I have had a fine surgeon, who prides himself on his physiology, ask me in astonishment why he suddenly saw several words at a time, on a test card with very small type, and then his customary poor vision took charge again, and he could hardly see the lines of type. He had never really thought of the subject, except in the perfunctory way that most doctors do. A year before, in his early forties, his eyes had begun to falter, and he followed without question the beaten path. It was just another case of that condition called presbyopia. The statements in the books about such cases contradict themselves; and I made him admit it. He was very much interested in the new idea of coaxing his eyes back to a normal conduct. That state of mind lasted for about three weeks. But he was a busy surgeon, and he never found the time to spend on his eyes, and so he soon decided that he would rather use glasses, and save himself that time. The point here is not that the doctor decided to wear spectacles for the remainder of his life. That is his own affair. My point is his attitude toward the subject. Although he accepted every explanation concerning the problem, his mind was not really aroused out of the remarkable, but customary mental inertia which is typical of most physicians in regard to the condition and the outlook today of the human eye. The outlook is the failure of the eye specialists to even consider any effort to save their patients from the consequences of an absolute neglect of the simple rules of health which are being used in every other branch of the medical profession.

Another way to learn to connect the image of a period with improved vision, is to blink softly and rhythmically at a large black letter, and make believe there is a spot on the bottom roll of the letter (G or C or G) which is Only as big as a period and is blacker than the remainder of the letter. Generally, even when the letter is not clearly seen at the beginning of the practice, it soon becomes very clear.

The reason is that the eye stops straining, because the letter is placed near enough to see it easily, 'and all tension in the eye, and all concern in the mind is gone as the interest is centered in the game of making believe that there is a period blacker than the black roll of the letter.

In this practice the letter is a part of the picture from the first, and is always imprinting itself on the mind. It is quite common for an eye to begin in a few minutes to see a letter which in the beginning was almost invisible. The letter does not always continue to remain clear. The improvement in vision may be only temporary. But the memory of that success is not last, and coming easier each time, and lasting longer, the improvement for that letter, becomes permanent. This always means improvement in vision for every purpose. In this practice, as in every technique of the gates method, the essential requirement is that the mind be given without reserve. The conception of what is commonly called "concentration should be left out of the work. Instead of tension, there is to be a whole-hearted, enthusiastic attention, a pleasurable emotion, which is so strong and alert that no other distracting thought can intrude to interfere.

A German specialist replying to a letter of inquiry from me, explains in his personal letter a conception of the mechanism of vision that illustrates the different ways in which different minds interpret the same facts. That same writer has an open minded attitude, and is very careful in his observations, and very fair in his conclusions. Helmholtz and Tscherning agreed about the function of the ciliary muscle in the eye, but Helmholtz believed that the muscle acted to relax the tension of the capsule containing the lens, and Tscherning believed that when it contracted it increased that tension. In his meticulous interpretations of the meaning of established phenomena, my correspondent seems to forget, at times, the psychologic element. Sometimes he leaves out of his considerations the evident functioning of that part of the mechanism of vision which is beyond the knowledge of the conscious mind.

My correspondent reminds me, however, that our entire life is a sight school. He points out that one born in the country can see and describe the differences in the conduct of different birds. Looking at them in the air, the country boy recognizes instantly a difference between the sizes and the flying habits of the dove, for instance, and the woodpecker, et cetera. It is such a simple affair to him, that he is puzzled by the failure of the city boy to follow his descriptions; but the city boy had not yet stored up pictures of birds, and registered impressions. The writer explains that the picture on the retina of the city boy is the same as the one on the retina of the country boy. In other words, the writer accentuates the part that memory plays in vision; in this illustration, a memory which is simply an exercise of vision in a field to which it is habituated.

The same writer tells of the newly enlisted soldiers whose vision had been habituated to book figures, and were "nearsighted" at first to distant objects in their new surroundings. Whose recruits soon stored up a new register of those distant objects; and because their picture memory of the camp and the fields aroused their visual centers to an unaccustomed necessity, they perceived the objects which at first were not apparent to the conscious mind. That writer calls attention also to the spontaneous manner in which a veteran of a camp or garrison recognizes and identifies instantly the different marks of troops and of rank—simply because his memory prompts the visual center. In a like manner, the writer reminds me, we disregard much of the detail in customary pictures on the retina, as for instance, when we ignore the figures on the face of a clock and simply look at the position of the hands. That writer recalls that Cuvier was able to draw a complete picture of the skeleton of a prehistoric animal after seeing only one bone. His memory recalled the visual images he had registered during the years of research, and enabled him to actually see the picture of the skeleton, in his brain, just as clearly or more so, as a person without that memory would see the skeleton when looking at it, just the conception of these facts, if they are carried in the memory, and taken out habitually, and looked at, with the mind's eye, is a fine help and a most reliable expedient or technique in practicing the Bates method. The memory is such a large part of vision, that the neglect of it is a main factor in the faltering of normal sight. On the other hand, an alert attention to the picture in view, and a deliberate purpose to occupy the mind entirely with the performance of looking at it, will reveal to the consciousness of the adventurer an unexpected power in the mechanism of his own vision.

CHAPTER XXI

HOW IMAGINATION HELPS VISION

THE idea of this chapter is to call attention to the part imagination plays in the mechanism of vision, an idea which has no place in a system that ignores the mental part of the perception and interpretation of objects.

From my conception of this work, gained in ten years' experience, it is not possible far me to draw any line separating imagination from memory, in their relation to the mechanism of vision. There can be no imagination in the visual center without memory, and no memory without imagination. In other words, there is a real sense in which these two faculties act to supplement each other. It is helpful to keep this fact in mind always, as this will encourage both factors to enlist with a new power, because of the notice that is given to them.

Whatever impression is made upon the retina is of no valise until it has been interpreted by the mind. That interpretation depends upon memory, which is knowledge, which, in turn, is previous experience of other impressions. It depends very much, also, upon imagination. In the medical dictionary an image is defined as a picture or a conception with more or less likeness to an objective reality. An illusion is defined as a false or misinterpreted sensory image; a false interpretation of a sensory image. In Webster, the word imagination is defined as "… That power or function of the mind whereby we have ideal experience; primarily the power or process of having mental images; broadly the power or process of forming ideal constructions from images, concepts, and feelings with relative freedom from objective restraint.. . mental images, especially visual images.. . mental images of things suggested, but not previously seen."

In simple language, memory then is what the mind has to work with, and imagination is what the mind can produce. What conception of the power of the eye and of the mind is in the consciousness of a treatment of an eye which is simply faltering in its function, when the treatment neglects entirely all that is involved in the statements quoted above, from the medical dictionary and Webster s Dictionary? Without referring to the damage glasses do, as explained in previous chapters, it is plain that the treatment with artificial lenses begins by forfeiting much of the constructive power there is in a given mechanism of vision, as shown in the quotations given from the two dictionaries. That is the negative side. For the positive side, even the beginning that Dr. Bates proved, makes it plain that the possibilities, available to any ordinary mind that is interested, are beyond the imagination.

In normal vision, the memory and the imagination are always involved. That is the reason why two pairs of eyes, with apparently equal power of sight, will give the mind different visual impressions. This is constantly true, and depends upon the interpretation, as described above. The same pair of eyes, even when an average normal, will vary in the impressions received, because the mind varies in its conduct, and this influences the whole mechanism of vision. Even a want of attention will result in failure to see an important detail, just as a want of attention is the cause of a failure to remark an important detail in some project under consideration.

In discussing the power of a personality, when his imagination is realized, one says that he has "vision". Often it is quite plain that the difference between vision and lack of vision, in mental power, is an alert and discriminating attention. We unconsciously use the word vision in that relation. But when we think of the eye itself, the foundation of the figure of speech—well, is it not a fair statement to say that when the eye itself is specifically the subject, the imagination remains dormant and we do not actually think at all, not even enough to ask a few simple questions? How many parents, when they have mechanically put a pair of spectacles on their pretty, bright little girl for life, or their healthy, manly boy, have allowed their imagination to call their attention to the plain considerations involved?

In this method, it is necessary to take advantage of the imagination. In those cases where a remarkable cure takes place in a few lessons, or in a single hour, it is the imagination which accomplishes the "miracle". When someone who has automatically accepted some visual dysfunction as a natural occurrence, gets a normal eye back in an hour, something has happened—much like the report given to

me as a wisecrack by a patient describing a feeling in his heart. He said "You know, Doc, my heart just stopped beating and began to beat the other way."

When one makes a decision which positively determines some conduct, the emotion which controlled the will is often so far in the background that the person is not conscious of its presence. The patient I reported, who had been blind in his right eye from birth, was told by a well-known eye specialist that if the directions he gave, taught the eye to begin to function, it would be two or three years before there would be any improvement, but the patient was seeing three lines of letters on the Snellen Chart in eight days. That was not because of his memory. His memory had held him back as long as he had had one. The continual consciousness of the blind eye was a continual reminder and a constant inhibition.

It was a strange, new truth that aroused his imagination. The vision that came into his mind through his ears was a mental picture. The shock aroused dormant functions.

A famous Italian artist was taken into an art gallery when he was a boy. Something within him made him say: "I, too, am an artist." Without that imagination which was aroused suddenly in that patient at twenty-two years, the dormant mechanism of his visual center would have remained inactive.

There is no imagination without interest. It is because children have an open-minded interest in seeing letters and pictures that their eager attention creates imagination. There is always an immediate improvement in their vision. It is only when a child lacks this universal child's interest, that there is difficulty in arousing the imagination. An adult without a real desire to recover normal vision is naturally without any imagination on the subject, and there is no mental reaction to overcome the acquired inertia regarding the disability. But, on the other hand, when an adult is interested, there is a power in the adult imagination which is entirely stronger than the simple impulsiveness of the child.

Two young women, strangers, came to me on the same evening, and took their first lesson together. They both were quite near-sighted. One, whom we will call A, had heard of the Bates method only indirectly. The other, whom we will call B, had learned of it from an acquaintance who, herself, had received a remarkable and lasting cure in one hour, came several times, and had some interesting experiences. But her mind was never really interested. She had been impressed by the easy success of her friend, and probably thought it was necessary only to visit the office a few times in order to discard her spectacles. She always had a new alibi, and her evenings were full of other things, and soon she decided she was no longer interested. A was a different type. Her earnest mind was full of questions about the work. She reported different ways in which she put into practice the ideas she was gathering about the mechanism of her vision. The third evening she was so enthusiastic about her experiences, that I suggested she make a contract with herself. She had already discarded her glasses except at her work. She was to continue without them for the first fifteen minutes in the office the next morning—regardless of whether she could see her work or not. She was to put them on at the end of a quarter of an hour, even though she was seeing her work easily. She saw everything without difficulty, and she kept faith by putting on the glasses. But the glasses had lost the fight, as she discovered that she saw better without them. When she returned in a week, she had not worn her glasses for three days. That was some months ago. Since then, she has not worn her glasses at all, has not thought of doing so, and for months has not even given any special attention to her eyes—they are taking such good care of themselves that she does not have to think of them. Her mind, from the first evening, was continually imagining, and carrying out the new ideas; and she says now that she cannot imagine ever wearing glasses again.

That case illustrates the manner in which imagination carries on in the Bates method. A little incident in my own experience illustrates a different aspect of it. Recently, while waiting for a delayed appointment, I placed a 300 watt light with an aluminum reflector about three feet from my eyes, and began blinking at a spot on the bulb for half a minute, then closing my eyes for a minute or so and watching the afterimages which followed each other in the visual center. There would be a crimson moon, which changed its size, back and forth, and theta would be replaced by a green moon which might lose its outline and develop an irregular margin of gold or crimson or pink. The image would fade and be replaced by some vague patches of color, or by no specific picture. Sometimes, when the eyes were closed, the images would remain half a minute only, and not return. Again, when I persisted in silently

coaxing them to come back from some place, they would respond. They might be quite vivid, or quite faint. Several times, instead of the variable after-image of the light itself, there would be a perfect ring, which was the edge of the reflector, sharp and bright as though it were itself a light, and the circular field inside was a softer and less bright mass of varying color. In about ten minutes, I changed the practice, and placed a large Snellen Test Card three feet in front of my eyes, with the large 200 foot C on the same level, and threw the reflected light on the large C. I put a spot of black ink, as big as a large period, in the middle of the lower roll of the letter. Blinking at that period for thirty seconds, or sometimes longer, I kept my mind occupied with the thought that the period could be distinguished even on the inky blackness of the letter. The third or fourth time that I closed my ' eyes, the large C stood out vividly, with rolled edges like a big doughnut, and curved ends where the lines broke sharply on the right hand side. The letter was as white as a glazed electric bulb, and the white card was a bold black, and the three-inch flat post that carried the card, and was painted white, was also black. At first there appeared no spot where the ink period was. But in later images there was sometimes an empty space where that period was, which was much larger than the period.

When I had seen, as an after-image, several letters and the card and the post quite clearly many times, appearing a few seconds after I closed my eyes, remaining a few seconds, disappearing and returning, sometimes just as clear and sometimes fainter, and sometimes returning three or four times, a remarkable thing occurred. While I was seeing the vivid white C and seeing also, more or less clearly, about three lines of letters below it, the moon that previously had appeared as either crimson or green when I was practicing with the 300 watt light shining on my eyes, now inserted itself into the picture as white, and covered up the images of the letters I was seeing. I reasoned with the moon, during some seconds, and it disappeared. But it had damaged the clear images of the letters, although they did try to reappear. While I waited and watched, the moon came back, as one picture is substituted for another sometimes in the moving pictures. This behavior was repeated, in varying ways, several times, as I continued the practice of blinking at the spot on the large C, with the reflector throwing a spot-light on the letter. I have had various experiences of the same nature with the light and the card, but this vision was different, and more vivid, and more specific, and more significant than any other.

That particular incident, characteristic of the kind of reactions which are experienced in this work, is to me a sort of parable. The later after-image of the light was the recurring memory of the recent impression made on the visual center by the strong light. It was a kindly impression, but it was evidently a bold impression. My later effort, with the letter, was working likewise with the visual center—the mental part of the mechanism of vision. The stimulus given by the letter, acting as an association of ideas, aroused the memory of the deep impression made by the light, and it automatically came back into the effort to help the visual center. To me it all seems so clear. That is the way every function in the body tries automatically—outside of our consciousness—to help every other function, when the functions are working normally. In this case there was no conflict. I saw the letters vividly, before and after the vision of light. It was the visual center itself, responding to my wish, and the memory (the after-image of the light), and the imagination, aroused into action, all working in harmony. I have proved the relaxing effect of the practice by picking up the telephone book and reading easily any name I put my finger on.

In other chapters, I have described in detail, procedures and practices which give the imagination an opportunity to "Carry On." We all have in our imagination, a power that we scarcely know. The revelations in these simple techniques comprise experiences which open a door that all may enter.

CHAPTER XXII

THE SNELLEN TEST CARD

THE Snellen Test Card was devised by Dr. Herman Snellen, a Dutch ophthalmologist, who died in 1908. It was designed as a routine test of visual acuity. The largest letter should be easily read at two hundred feet by a normal eye, and the smallest letters at ten feet. Many can read the small letters at even twenty feet. There are those who do not feel the need of spectacles and yet cannot read even the forty-foot line at ten feet. The explanation of this, perhaps, is that their eyes falter when called upon to do something which is unusual. I have seen cards, offered as test cards, which would almost make one

believe they were arranged with a deliberate purpose of making it harder to read the letters. The combinations are remarkable, but more unfair, the letters are so closely packed that there is not enough white space around them to give the eyes a necessary contrast.

Dr. Bates found a new use for the Snellen Card. When the letters are properly arranged, it is a great help and encouragement to the eye in an effort to recover the normal power of vision. Care is required in the approach that is made. Dr. Bates tells of a boy who could not see the large figures on a clock in the classroom, nor even see large writing on the board, who promptly read the ten-foot line at ten feet, and then was able to see the clock and the board which he could not see a few minutes before. A patient of his, a physician who had worn glasses for near-sightedness for many years, and had improved by the method Dr. Bates had taught him, until he had telescopic vision, retained and improved his power of sight by the simple practice of reviewing the letters on the Snellen Card every day.

Consequent upon a protracted discussion between Dr. Bates and some skeptical ophthalmologists in a meeting of a New York society, which was followed by another such discussion before a different New York City society of ophthalmologists, the Board of Education of New York City asked Dr. Bates to consult with them. The outcome of that consultation was that Snellen Cards were hung in the class rooms of the public schools. It was found, during the several years that the cards were in use, there was a great general improvement in the eyes of the children. Dr. Bates gives the figures. There was a constant undercurrent of opposition however, to the use of the card, and Dr. Bates writes that finally on the insistence of some physicians, the card was removed from the school rooms. Of course no doctor would admit responsibility for such a proceeding. How could the presence of the standard test card, in plain sight, have any unfavorable effect on the eyes of growing children? It is a matter of record however, that it was there for several years, and ultimately it was eliminated. During ten years, I have learned the value of it, as a special opportunity, and as a routine practice. I have taken many children who had been unable, during an examination, to read the fifty-foot line at ten feet, and enabled them in half an hour to read three or four lines which at first they could not see.

Although all reading involves seeing letters, the mind very soon learns to see in terms of words. The letters are not consciously scanned. The words are recognized so much quicker than thought, that the conscious mind pays little attention to the letters. But the memory of all the letters is the foundation of the consciousness of the words. This familiarity is the foundation of the value of the Snellen Test Card in practicing to improve the vision. The interested attention arouses the co-operation of the mind. I have demonstrated this many times. A patient looks at a letter but cannot see it. I direct the drawing, mentally with the eyes closed, of the lines of the letter. Make believe that you are drawing a perpendicular line; across the top draw a horizontal line, shorter, with a small part to the left and the remainder to the right; at the right hand end drop a very short perpendicular. Draw a shorter line to the right from the middle of the first perpendicular. Draw a short line across the bottom of the perpendicular. Repeat the drawing six or ten times, still with the eyes closed. Now open the eyes and look at the F. Often it is plain at once. Always it becomes clear very soon. Knowing the letter you are looking at, but do not see, draw the letter mentally, several times and very deliberately, then open the eyes. Repeat this procedure until you see the letter when you look at it. If the mind really is interested, the consciousness of any first failure is lost in the objective attitude that absorbs the mind, the tension is relaxed, and the visual center recovers its normal function. The straining ceases, the rays of light are properly received, and sight becomes normal. Whether or not my explanation is correct, it is true that many times I have watched the above expedient enable a patient to see clearly, one letter after another, which a few minutes before, the patient could not see.

Often enough, when the letter in the mind becomes clear, the whole line of letters flashes vividly on the sight. It may happen that the picture will fade, and the dimness of sight will return; or the clearness of that line may be permanent at once. Sooner or later, the power of the eyes returns and the patient can read all the letters on the card at the given distance. That normal vision almost always remains permanently. Sometimes it falters again, because of neglect of the learned habit of using the eyes correctly, or because of mental stress depressing the mechanism of vision. Any such recurrence can always be relieved, if the patient is willing to take charge of the situation.

To one who has no other idea about the mechanism of vision than the current attitude toward it, such conduct of the eyes seems incredible. One who has never given the subject any deliberate thought, but has simply accepted the carefully nurtured representation that any abnormal conduct of the eye implies an absolute loss of its power, has no foundation in the mind for the imagination to work with. There is commonly an incredulity. One does not believe something which is different from what one seems to see as natural behavior. The prevalent attitude of mind is that there is nothing to do for a faltering eye but ignore its own power, and put on spectacles. But why not remember that the great mass, still and yet, continues to get along without glasses, under the same environment and conditions? Why not ask why and how so many experience some difficulties, but get over them without outside help, and numbers of others, young and old, wear glasses for a time, and then discard them permanently?

When one has seen many cases of impaired vision, in adults as well as in children, recover normal sight, and retain it, 1y simply giving to the eye itself an earnest attention, one gradually learns to realize the causes for the condition, and the reasons for the cure. These eyes of ours have been developing so long, under environment which has meant necessity for power and adaptation, that they have inherent qualities and versatility to which we are thoughtlessly and stupidly indifferent. When life and happiness depend upon good vision, and there is no knowledge of such an artificial help as a piece of glass, the vision remains as strong and reliable as is necessary—it adapts itself to the burning sands of the Sahara, or the ice fields of the Arctic, or the far distances of the ocean or the plains. The claim that vision has not evolved to meet the requirements of modern complexities is preposterous. Many millions of eyes are cheerfully and satisfactorily contradicting such a pronunciamento by doing all the things that such a claim would have us believe it is not possible or natural to do. In most of the cases where the eye is failing, its natural power is very near the surface, ready for normal action. Half an hour will rouse its dormant functions, and the marvelous mechanism of vision will give a startling demonstration of how easy it is to have as good sight as those around us, if only we care to take the trouble to use what is born in us, and still is ready, if only we command it.

Snellen Test Cards can be secured through a bookseller. Optical supply houses used to sell them, but several I know of have refused to do so, under the excuse that they should be used only under orders from a physician or optometrist, and can be had from them.

There are a number of different techniques or practices, and some are more satisfactory with a given patient than others. The simplest practice is always good, either for a beginning, or to use as a daily routine for a longer period of time. It is called FLASHING, because one looks at each letter only once, and practices on all or most of the letters on the card one after the other, during each period. Seated comfortably, with the card in a good light and about ten feet from the eyes, blink softly and with a regular rhythm at a tiny spot on the letter being used, quietly ignoring every other spot on the card. Having blinked automatically for twenty or thirty seconds, close the eyes for twenty or thirty seconds, but do not allow the mind to think of anything other than the specific spot on that letter. When the eyes are opened, select a spot on the next letter, and repeat the same procedure, letter after letter. Do not forget that the purpose is to relax the mind, and the eyes, and all the muscles of the body, and if this condition is not produced, analyze the situation deliberately, and ascertain what it is in your technique that is preventing, instead of helping you relax.

Sometimes during the first period of practice one will get a proof of relaxation in the appearance, while the eyes are closed, of the letter one was blinking at. Generally, that vision does not appear until one has repeated the practice a few times, either at one sitting, or at some other time. When the letter is seen, it will be in white, not black, and if the card is seen, it will be black, not white. In later practice, when more relaxed, the real colors will he seen at first, but they will gradually fade into the reverse. In further practice, it will generally happen that the letter will be present a few seconds and fade, and then return, while the mind waits in confidence, perhaps two or three times. As the practice is perfected, it will develop that four or five lines will appear, as vivid as a fine Neon light. These are after-images, and indicate an impression made on the mind so strongly that it remains intense enough to prevent other impressions from being perceived. This is because the mind is alert and interested, and free from any abnormal tension. When these results have been secured, it will always be found that the vision has been improved. The daily practice of flashing the card is a very fine help in securing and retaining good normal vision.

It is a good practice to select some large letter, and to blink at a tiny angle on it for half a minute, and then close the eyes and keep in mind the spot that was blinked at. Continue that specific practice of blinking and then closing the eyes, for fifteen or thirty minutes.

There are several practices which encourage particularly the imagination. Sitting so that the letter D on the fourth line of the Snellen Card is seen clearly, blink rhythmically at a small spot in the white circle inside the letter, and make believe the tiny spot seems whiter than the white card. Close the eyes, and keep the mind thinking of the make-believe tiny white period. After this alternating practice has continued for twenty minutes, the white circle will appear to be a raised disk, whiter than the card itself. After a few such practices, that white circle will appear whiter, and raised above the rest of the card, whenever it is looked at, and whenever it is seen in that way, the vision will be good.

Using the lower curve of the big C in the same way, make believe there is a tiny period at some spot on the curve, which is blacker than the rest of the letter. If it is found difficult to make such a spot appear, put one on with black ink, and work with it. The blackness of the new ink will soon be lost, but the memory of it will have the effect of continuing the appearance, and it will be found that such a tiny spot can always be seen when the letter is looked at—just as we can recall the memory of any other impression made strongly enough on the mind. It may serve as an even better introduction, to put a tiny black period on the white card, just under the center of the lower curve of the C, and blink at it in the same way. When properly done, the proof of relaxation will soon appear in a vivid picture of the letter C, seen when the eyes are closed. It will be found then, that the other letters looked at will be clearer in outline.

It is a good practice to blink consistently at the card, just under a letter, and pay no attention to the letter itself. It is not possible to strain to see a white card, and when the mind is kept attentive to a spot on the card, it ceases to try to see. The letter above the spot will soon appear and become clearer to the sight, even though the eye is not paying attention to it. The relaxation produced has again made the mind more receptive, and more conscious of the impression made by the rays reflected from the letter.

A very good technique, more especially, perhaps, for near-sightedness, is to place the card near enough to the eyes, so that a line of letters which cannot be seen at the distance set for normal eyes is easily seen, and then blink at the letters, or under them, one after another, for twenty or thirty minutes. Because is it not necessary to try to see them, the continued attention to them quiets and relaxes the eye, and the vision improves. It will be found that soon the card can be moved progressively farther from the eyes, and the letters will still be seen clearly at a distance where, at first, they could not be seen at all. If the large card is placed ten feet from the eyes, and the duplicate card with smaller letters is placed near the eyes, it is a good practice to blink at the C on the small card, which is marked to be seen at fifty feet, and then blink at the large C which is ten feet away. Each letter is easy to see. The eyes relax, the vision improves, the mind is confident, and the smaller letters on the large card, which could not be seen previously, will gradually show clearly.

During the deliberate, confident and earnest practice of an hour, it has frequently happened that eyes which could not read the seventy-foot line at ten feet, will improve sufficiently to read the thirty- or twenty-foot line without any difficulty. This is not an idle theory-it is a fact demonstrated repeatedly.

As a unique technique which is sometimes very gratifying, one may put a heavy black ink period on the thumb nail, and place the large C ten feet from the eyes. Blink softly at the ink period while holding it as near the eyes as it can be seen clearly. Alternate by blinking with the same rhythm at a small spot on the big C ten feet away. Soon it will be found that the thumb can be brought nearer to the eyes, and the period seen just as clearly. Occupied continuously with the interesting game, which consists of a practice in accommodating the eyes from the nearest possible distance, to the card at ten feet, one will find that the eyes gradually can be lowered on the card, and see clearly, letters which, at first, could not be seen at all. If the interest is sustained by an earnest desire, an hour will pass quickly at this practice. If the light is good, and one is careful not to try to see any letters which are not clear, in an hour a degree of relaxation will develop that will show a most gratifying improvement in vision.

Another method is to close the eyes for fifteen or twenty minutes, and imagine that there is a specific feeling of restfulness and lethargy in the different muscles of the body—putting the mind on the muscles of the neck, and then on the Muscle on the front of each arm, and then on the muscles of the legs. Then open the eyes and look at a small section of some large letter on the Snellen Card, and make believe that section is blacker than the rest of the letter. Continue to look at it, blinking softly occasionally, for thirty or forty seconds; then close the eyes and keep the mind on that portion of the letter, remembering the idea that it was blacker than the rest of the letter. After practicing in such fashion for a few minutes on that particular spot, select a different spot, and repeat the procedure. Although this is only a game, it involves the keen attention of the mind; there must not be the least concern or tension. The visual center is being called upon, in a normal way, to function as the mind directs. When the eyes again are closed the deeper impressions, made because of the alert attention of the faculties, are brought to the attention of the mind in what are called afterimages. The effect of such a practice is to stimulate the mechanism of vision into a better function. The vision is improved. All the letters on the card are seen more clearly.

If someone will swing the card back and forth in a short range, while the patient looks straight ahead and pays attention to only one small letter as it crosses the line of vision, it will be easy to learn to imagine that letter moving, as it was seen, when the eyes are closed. When one can imagine a small letter, moving back and forth in a short range, it will be found that the eyes are relaxed and the sight is improved. Half an hour devoted to that practice will be sure to give most satisfactory results.

A good practice, previously described, is to swing the head in a short range back and forth, across a small letter near the eyes, which then appears to be moving in a direction opposite to the motion of the head. Soon it will be possible to imagine that the letter is moving, while the head is still, and the eyes are open and looking at it. It will also be possible to hold the head still, and keep the eyes closed, and imagine the letter moving in the same direction that it seemed to be moving when the eyes were open. One must lose all thought of the eyes, and occupy the mind with the technique, in the same objective way that one gives an impersonal attention to any piece of work, or pleasure, or technique in which one is actively interested.

When one is interested, and has comprehended the mechanism which is involved in these practices, other techniques may be devised that are helpful to their own way of thinking.

It must be remembered however, that any effort to imagine a picture which is unnatural, will produce an abnormal reaction in the automatic functioning of the mechanism of vision.

There are many objects which will serve as the subject of such practices as I have described. Some of these will be suggested in another chapter. But the life-long familiarity of the mind with letters, and the fact that the mind is working with them, and dependent upon them all day long, are reasons why they facilitate, better perhaps than any other objective opportunity, whatever effort is being made to encourage the mechanism of vision to correct the dysfunctions which may be present, and to insist upon the recovery of normal sight.

CHAPTER XXIII

RELAXATION

THE word "Relaxation" is much in evidence in these later days. Often it is used in earnest, but more commonly as a by word or a jest. Even a very little reading produces the consciousness that different writers have varying concepts of what it is, and how it may be produced. A medical dictionary says that relaxation is "a lessening of tension." The same book defines tension as "The condition of being stretched or strained." Again it speaks of "intra-ocular tension," for instance, as a normal condition. It defines the word Tense, as "Drawn tight; rigid." There is a difference therefore, between tense and tension, in that book. Commonly when a layman speaks of "tension", as it applies to the human body, he means a tenseness which is of the nature of the "Drawn tight; rigid" condition—not the "tension" which may be a normal condition. But dealing with such terse and technical definitions does not explain even as much as we ourselves know about the condition called "tension" because all of us have

experienced the feeling of tension, as we also have experienced the feeling of relaxation. In Webster's Dictionary, tension is defined as "… straining or tensing; stretched to stiffness." And "Figuratively: extreme strain of mind;-as, the tension of suspense." It is easy to explain the condition of a tense muscle. How can a tense condition of the mind be explained? Relaxation is defined as "… abatement or remission, as of, tension …"

In short, the tension we are discussing is an improper or abnormal condition; the relaxation we are discussing is not an abnormal weakness, but is the proper condition, or what the doctors call normal. To remember this is vital to a comprehension of the purpose of this endeavor, and a clear understanding of the mechanism of the technique. It is necessary only to release a function from the domination of an unnatural constraint; to encourage it to act in the manner which is in its power, ready at command. Much has been written about the process of relaxation, and the different ways in which it cars be carried out. This book is concerned only with the method and the special techniques discovered and taught by Dr. Bates. To make it clear, I will cite some established facts which support the explanations he has given of his own work.

Relaxation does not necessarily mean rest, which is physiological; but it certainly does involve psychological reactions. To correct abnormal function, it is necessary to utilize the power of autosuggestion. Those who succeed in this endeavor, do so because their minds accept and act upon the given suggestion. This means that in the conscious mind there is a feeling which acts as an order to the "unconscious" mechanism, of which the conscious mind is unaware. This is the process, referred to before, which has been described by a famous biologist as the relationship which exists between psychological and physiological processes. These relations are real, but their exact nature is unknown. They are of profound significance. They prove the objective importance of the spiritual activities which that biologist believes the research workers have failed to study. It is his belief that a knowledge of these processes will open a new world to the race.

The method of Dr. Bates is founded upon this established principle of conduct. It is of the same nature as procedures long used by psychologists and now being used by psychiatrists. It is an endeavor to divert some central control function from the abnormal habit which it has developed, and occupy itself in performing in its inherent normal manner. Such Procedures are in principle very simple. They are in common use in daily life by thoughtful people, consciously or unconsciously. One often sees some interested party trying to meet and offset the various kinds of abnormal central control reactions.

Perhaps it will help, in some measure, to make clear the factors involved in the Bates method, if we consider the theories underlying the ideas and the methods of approach of other workers in this field. One writer on the subject of relaxation, has analyzed and commented so frankly upon his own conception of the knowledge of other medical men concerning it, and their methods in treatment, that his exposition may be taken as an illustration of the possible explanation of the mechanism involved.

Dr. Weir-Mitchell was one of the leaders in medical practice in the latter part of the last century. He developed a system of rest, and relaxation, and special diet, which resulted in the recovery of normal health by debilitated patients who could not be cured in any other way. The before-mentioned writer's criticism of the work of Dr. Weir-Mitchell, and those medical men who followed his successful method, is that in their work there was a strange neglect of the underlying physiology. He makes a further comment, which is a truth well known to medical men, although he apparently thinks that it is not. That truth is, that a patient may be "relaxed" in the popular sense, or in what the above writer calls the sense of Dr. Weir-Mitchell, and may still remain tense in certain parts. The condition called eye-strain is a typical and quite prevalent illustration of what he refers to. That writer also asserts that laymen, and even neurologists, mistakenly believe that rest, change of scene, physical culture or various pleasures, may mean the same thing as relaxation.

That writer further maintains that in his own specific method of securing what he calls progressive relaxation, no suggestion is used. He claims that he trains the patient to use his own initiative. He tails his system a nervous re-education. His work involves the patient in an intricate and complicated experience and training, requiring a great deal of time and instruction. There must be developed a consciousness of the conditions of the various muscles of the body, and a trained judgment, able to

estimate and control tension and relaxation. He claims that this education of the patient will ultimately develop into a trained condition of the muscles, in which they will automatically be kept in a correct state of relaxation. They will be managed by an automatic supervision of the central control, but there will be what is called an unconsciousness, or unawareness, of the process. He is confident that the condition which he describes may become permanent, and the patient can sustain a continual condition of normal relaxation. I believe that this is a fair description of that system, and full enough to make it clear. I offer it as a contrast to the method of Dr. Bates. I believe that a deliberate consideration of the technique and practice of such a method will help a patient to understand the mechanism of the method of Dr. Bates, which method is simple and direct, and free from such an intensive multiplication of intricate detail. In deals directly with the central control, by suggestion and autosuggestion, and is readily available, at any time and in an instant. It is in keeping with the principles of the work of medical men who are correcting and curing the different abnormal nerve tension conditions.

The special aim of this chapter is to make as clear as possible the meaning of the word "relaxation" as it applies to the mechanism of vision, and how the method of Dr. Bates functions in securing that specific condition.

The writer quoted above describes one of the effects which his method produces as a certain toneless appearance of the eyelids, in which they do not wink during a prolonged period, and there is no motion of the eyeball. Such a condition, artificially secured, is a direct interference with the normal automatic function of both the eyelid and the eyeball. Both of them, when normal, are in constant, automatic motion, of which there is no awareness in a normal individual. He describes a technique by which he teaches what he tails partial ocular relaxation. The patient is taught to stare, with open eyes, and let the eyes go so that they are not looking in any direction, but develop what that writer calls an extreme degree of relaxation. This extreme relaxation of the eyes, he writes, is soon terminated by a burning sensation, due to absence of normal winking and an unnatural dryness of the eyes. The patient is then directed to permit his eyes to wander about to a slight degree, and not to relax them so extremely. Winking follows, discomfort disappears and a relative rest is secured. The conclusion of that writer's description of this specific relaxation of the eyes, is a warning, which he thinks may be necessary, that this proceeding of his represents no attempt to help the patient to throw away his glasses. He then proceeds to put Dr. Bates in his "dog house", along with Dr. Weir-Mitchell and the psychologists who apparently do not understand his conception of the physiology and the psychology of relaxation-and probably could not understand why the procedure he has just described is not what most psychologists would call technical psychological suggestion.

The method described by the writer quoted above, involves an elaborate and difficult and extended course of nervous re-education. The patient must learn to localize tensions, when they occur during nervous irritability and excitement, and to relax them away. He must be trained to use his own initiative in this intricate and involved process.

The method of Dr. Bates is not an unproved theory, open to a mere academic discussion, or to be condemned as unwarranted and incorrect, and dismissed by the simple say-so of somebody's personal opinion. During twenty-five years of practical use, the value and power of this theory has been demonstrated. It is a simple method, which is founded on established principles in daily use by psychologists and psychiatrists. It has never been challenged, except by such unwarranted assertions as the one quoted above—merely unsupported, incredulous personal opinion.

By the method of Dr. Bates, relaxation is secured by directly influencing the central control which gives orders to every function in the body, and determines whether the conduct of those functions is to be normal or abnormal. It does not involve an argument with that central control. It is an initiative of the patient which constrains abnormal tension at its source, and diverts the attention of the controlling force, so that the organism is absorbed in some specific contemplation. This has the effect of displacing the improper functioning. The tension is thus removed, and the normal function asserts itself—that is relaxation.

Suggestion is defined as - "The presentation of an idea, especially indirectly, as through association of ideas; a bringing before the mind for consideration, action, solution, or the like."

Psychological suggestion is defined as: "The action of one idea upon another, resulting in the connected appearance in consciousness, as in the processes of association. The entrance into the mind of an idea or intimation, originated by some external fact or word, which tends to produce an automatic response or reaction."

In the medical dictionary, autosuggestion is defined as: "The spontaneous occurrence to the mind of ideas derived from impressions received in the hypnotic state. Also the peculiar mental state often occurring after accidents, in which suggestions are easily received, so that the slightest injury to a part induces an hysterical paralysis or other disability. The latter state is also called traumatic suggestion."

In Webster s dictionary, autosuggestion is defined as: "Self-suggestion, as distinguished from suggestion coming from another. Autosuggestion is characteristic of certain mental conditions in which expectant belief tends to produce disturbances of function of one or more organs."

It will be noted that the medical dictionary confines its explanation to a hypnotic autosuggestion. It states specifically however, that the spontaneous occurrence in the mind of the idea is derived from impressions received. It also states that suggestions can influence the mind when it is in the peculiar mental state often occurring after accidents, and can produce an hysterical paralysis or other disabilities.

Webster s dictionary makes the distinction that an autosuggestion does not come from another. It then goes on to say that the autosuggestion may be a characteristic of certain mental conditions.

Both of the dictionaries explain that an autosuggestion has the power "to produce disturbances of function of one or more organs, hysterical paralysis or other disability." It does not seem to have occurred to either of them that the same influence might he used to correct the said "functional disturbances, hysterical paralysis or other disability." But the medical profession knows that the mental conditions which both of the dictionaries describe, have been deliberately produced, and have been used by medical men for long years. They are being used to counteract and correct the described "disturbances of function of one or more organs, hysterical paralysis and other disability." It is well known in the medical profession that in certain cases there is an actual hysterical paralysis, and an actual disturbance of function, which disappears when a damage suit is decided. Some of those cases could not be cured in any other way. Some of them are cured when the suspense is ended, even when the decision is a disappointment. The mental condition which produced the dysfunction, is displaced by the new mental attitude, and the result is a different reaction, which permits the return of normal function.

May I diverge for a specific purpose? Westinghouse, whose genius devised the airbrake which is used on trains all over the world, was prompted by an autosuggestion when a boy. The train he was traveling on was stopped. Two freight trains had had a head-on collision on the track. It was explained to him that both engineers had seen the impending collision, but there had not been time for the brakemen to climb from car to car and put on by hand, the separate brakes on each car. The idea which was aroused in his mind, was that the engineer should have at his control an automatic brake which would act on all the cars at the same instant. His efforts to devise an automatic mechanical brake, or a brake worked by steam, proved to him that he must find something else. One day he read that the drills used to burrow the tunnels in the Swiss Alps were operated by the power of compressed air.

His genius told him that this would suit his purpose. His father was an inventor. But nothing that young Westinghouse said, to his father, or to anyone else, aroused an autosuggestion kindred to the one that was dominating his own mind. Commodore Vanderbilt, himself an executive genius, declared: "Young man, I have no time for fools." Westinghouse finally secured the money to equip one train with brakes operated by compressed air. The first time they were used on a passenger train, the train stopped so suddenly that the people were thrown from their seats.

Besides the illustration here of the operation of an autosuggestion, there occurs to me what seems like a fair analogy. The great mass of those who are wearing spectacles, are analogous to the trains that

had to get along with hand brakes. Most of them would be helpless without the artificial device which they are using instead of using their own eyes—just as the engineer was helplessly dependent upon the separate brakes on each different car in the train.

Autosuggestion is a mental reaction which is in constant operation. Generally the process goes on entirely outside of our own awareness. It is "Why We Behave Like Human Beings." It has been expressed differently in the words, "The highest intellectual function is simply a response to stimuli." Unconsciously we react to something in our environment, and the result is a decision formulated in our consciousness. When that happens, it is called autosuggestion. Coué explained clearly that most of the suggestions constantly being received from our environment are simply merged into our mentality, and produce no apparent specific reaction. In order to influence the current automatic mental conduct, it is necessary to make a specific impression on the mind, strong enough to modify its behavior.

This is accomplished by the method of Dr. Bates, when the condition of eyestrain is relieved. The dysfunction has been replaced by a normal function, because a strong enough impression has been made on the mind to prevent the continuance of the wrong habit that was present. The whole includes the parts. When the mind has been relaxed, in relieving eyestrain, every other part and function of the body is relaxed also.

In a previous chapter, there is a reference to a report presented to a scientific association, signed by four medical practitioners of high standing. They had cured one of their number of a gastric ulcer, uncured by seventeen years of medical treatment. The cure was accomplished by suggestion. They had then cured thirty-two other cases by the same means. The treatment used was similar to the practices of the Bates method.

In my own practice, I have records of the cure of two cases of epilepsy, each of over five years' standing, and both have been free from attacks for over a year now. They were both using luminal continuously, when they came, and having constant attacks. The luminal was discontinued, at once and permanently. The treatment was principally relaxation with the use of phonograph music and directed mental attitudes in the office, with similar practices regularly at home. The same success was secured in several cases of extreme nervous disturbances, and one case of extreme chronic stuttering. The point here is, that these different abnormal conditions of the nervous system were cured by relaxing the tension which was present in the mind, and by the methods used for the cure of eyestrain.

It is not possible to correct any abnormal function by individual effort without enlisting the co-operation of the control center in the brain. We cannot direct the functions of our organisms. We do not even understand their mechanisms. We can secure results only by influencing the conduct of the control center through the impulses of our emotions. For the purpose of securing relaxation of the tension commonly called eyestrain, the emotion necessary is an earnest desire for normal vision, and a confidence in the method suggested. With that conviction in the mind, we have begun the autosuggestion which will effect the realization of our desire.

Relaxation is not to be secured by demanding it. In other words, it is not possible to make an astigmatic eye see clearly by simply ordering it to do so. In practice, such an effort increases the dysfunction. By trying to force the eye to see, a conflict is introduced between the will and the automatic mechanism which the will does not even understand. One does not expect to slow the fast beating of the heart by giving it an order. A thoughtful person does not try to relax and quiet an excited individual by simply commanding silence. We endeavor to divert and persuade these abnormal reactions. The practices which have been described in previous chapters serve to relax the mind in just the same manner—by securing the compliance, and the spontaneous support, of the mechanism which has been at fault.

Emile Coué had success beyond all others in teaching those who were troubled by functional disturbances to cure themselves. His work was founded on the realization that our thoughts control our will. He may have learned it from Proverbs, where it is written: "As he thinketh in his heart, so is he." Wherefore, if the thought in our mind is that we cannot see, our will cannot overcome that domination. Coué taught his patients to replace wrong thoughts with right thoughts. Instead of being sure that the ailment could not get well, he persuaded their minds to believe that there was power in their bodies to

correct the fault. From various sources the knowledge is accumulating, that disordered functions are consequent upon some lack in the mind of that normal conduct which is what Dr. Bates meant, and what psychologists mean, when they use the word relaxation.

There is in psychology and in physiology, just as truly as there is in the spiritual life, a state of mind which has been called "the peace that passeth all understanding." We can possess this peace, even though our conscious minds do not know how our subconscious minds can give it to us. If we want it earnestly, we can surely have it. With that perfect relaxation, there is always perfect vision. The millions around us who have constantly fine sight, owe it to their relaxation. In previous chapters I have described specific practices which will enable those who are interested, to learn how to relax their minds, and relieve the eyestrain that is disturbing their vision. They must have the individual initiative, and having put their hand to the plow, they must work with that faith, without which man accomplishes nothing. Those who carry on that way, always succeed. I know this, because I have been over that road myself; and I have seen in my work many wonderful cases, which were not miracles, but were manifestations of the power of the nature that is in us, and is ready to work.

CHAPTER XXIV

ILLUSIONS OF VISION

EYES with normal sight have different illusions, as well as eyes with abnormal sight. An illusion is not caused by the same strain that causes an error of refraction. To imagine that one is looking at something which has no existence is different essentially from a distortion of the rays of light received on the lens. To be unable, at any time, to distinguish between two colors, differs from a reaction which makes a black letter seem some other color, and perhaps a color that is quite variable. There are illusions as to size and form; and these may relate only to the object when it is at various distances from the eye. These illusions may be influenced by environment, or by circumstances. There are illusions as to numbers, two or several objects being seen when only one is present; and the relative arrangements may be different. The illusions may vary when only one eye is used; and differ with one eye from the illusion seen with the other. Letters in words may change places, and the changes may vary. These actual illusions are not errors in refraction, but are caused by some abnormal function in the visual center in the brain—in other words, they are conceived by the mind.

An unique illustration of these illusions is the experience of some persons when practicing the eyes on the special cards made for use with the stereoscope. There is one card with the letters O N on the left half of the card, and the letters N E on the right half. It has happened with several patients that with both eyes open, they have imagined that they saw the letters N E with the left eye, and the letters O N with the right eye. They could not possibly have seen the letters that way. The transposition therefore must have been made in the mind.

It must have been imagined. It was distinctly an illusion. That is not hard to realize; although, of course, it cannot be explained. In every case the patient has succeeded in fusing the letters, so that one letter N forms a perfect union with the other N, so there appears to be only one N, and when thus fused they see the word ONE. This is accomplished by relaxing the abnormal tension in the mind, so that the fusion function works normally.

There is an interesting variety of illusion which is quite common. Many explanations are given for it. The technical Latin name for the condition means "flying flies." There seem to be floating specks which are generally dark or black, but may look like air bubbles, or have different colors, and often are connected in chains. They generally appear to be in motion, but do not change their positions. They seem to be going, but do not go. They are present more or less constantly in the different kinds of abnormal vision; but may be present at times when the eyes have normal sight.

These strange things are only illusions, and are caused by some tension in the mind. I can speak personally on this subject, because I was troubled with them for years. They were quite variable, in their presence and absence, and in their conduct. Sometimes I have studied them, with my eyes closed, and it has happened often that in the midst of my observations they would simply disappear. I soon

observed that they were not accompanied by any symptoms except the interference with vision, and I realized early that they must be some kind of a nervous disturbance.

Patients have described the same experience. I asked one patient, a woman of forty, who came with a chronic inflammation of the iris—a condition which was very painful and made her almost blind—if she had such specks in her eyes. She said: "Yes, I have flocks of them in both eyes, and there are some big grandfathers among them that seem to shut out the light." The iritis was cured by the Bates Treatments, and the specks disappeared also. My own specks still appear sometimes, for short periods only, but are never annoying, as they used to be.

There are many differing illusions of color. Looking at a black or white or colored surface, or at a strong light, as a 300 watt or a 1000 watt electric light, and then closing the eyes, one will see various colored after-images, and generally these images will change colors. I have looked into the noonday sun and seen most interesting after-images—streaks of brilliant colors, generally perpendicular, followed by vague blocks of varying colors. I have found that my sight is always improved in a few minutes, after the effects of the stimulation have subsided, so that I can see small letters at a greater distance. Looking at the sun, until one becomes accustomed to it, may cause an unpleasant reaction, and even lower the vision for a time. These after-effects are all illusions. They are not seen by the eyes, because the eyes are closed. They are caused by some tension in the mind—the same as abnormal reactions in other parts of the nervous system, which are quite common, are known to be caused by tension. Since most of these illusions are apparent when the eyes are closed, it is obvious that they are produced in the mind, in the same way that an illusion appears when the eye is open, and seems to see an object which is not present. Various illusions can be produced by deliberate efforts of straining the eyes. It is worth while to make such an experiment, simply staring hard, for instance, at a short line of heavy large letters. The distinct benefit in such a procedure is that it impresses on the mind a new knowledge of the mechanism of one's function of vision, and is helpful in working out the cure.

CHAPTER XXV

TECHNIQUES

IN the different special chapters various techniques have been described. This chapter is intended as a summary, or review. It is first, a reminder that all of the practices are only expedients to secure the relaxation which will not come unless the mind is wholly interested in some objective mental occupation. This very simple explanation is not easy to realize at first. I have seen this difficulty many times in the conduct of patients quite in earnest. They believe they are carrying out the directions perfectly, when actually their mechanical obedience is leaving out the spirit and the mental co-operation without which the visual center will not respond. Much can be accomplished by simply blinking at an ink spot on the thumb nail, with a soft feeling in the muscles, if the mind is completely occupied with that proceeding. In my own beginning, I blinked at the big C on the Snellen Card very earnestly, for as much as an hour, for several days, before I was favored with any after-image. I was conscious of my eyes, and full of questions and expectations. It was only when I finally lost all self-consciousness in the contemplation of a darker spot on the C, which I made believe was there, that the C stayed with me when I closed my eyes, and my mind showed me the most vivid letter I had ever seen. I afterward realized that I had been thinking of statements in Dr. Bates' book, and considering personal questions, when I thought my mind was entirely occupied with the technique I was practicing. There must be a loss of all personal feeling just as one has no self consciousness when one is intensely absorbed in any consideration which is strong enough to keep out of the mind any other thought.

Having chosen a practice which seems attractive, if it is properly carried out, the longer one can continue it without its becoming tiresome, the more one will find that the degree of improvement increases as the time of practice is extended. This is true of every practice. The man Dr. Bates wrote about, who practiced for hours continuously, and only stopped to sleep, was permanently relieved in thirty-six hours of several abnormal conditions of vision, including cataracts in both eyes. If one continues to deliberate thoughtfully upon any proposition, the mind finds itself being assisted by new ideas on the subject. The unconscious part of the mind is joining the endeavor, and giving aid from its storehouse of accumulated impressions. One who blinks long enough, in such an impersonal and

objective way, at a small black period underneath the big C, will find the vividness of the after-images increasing and lasting longer in accordance with the time spent on the period.

If the interest in such an endeavor is sufficient to eliminate the consciousness of the eyes themselves, keeping the mind absorbed in the objective procedure of carrying out the practice, an hour spent on any attractive technique will pass unnoticed. A business man of standing came to me because the glasses he had been given did not suit his eyes, and the only encouragement he was offered was the reply that he must be patient until his eyes became accustomed to them. When I asked him how much time he could spare each day for practice, he did not tell me what a busy man he was. He realized that the glasses were not helping him, and was determined to give this entirely different treatment a fair trial. He said he would give an hour before leaving home in the morning, an hour at eleven, another at four in his office, and an hour every evening.

He began by discarding his artificial lenses at once. The attitude of his conscious mind pushed aside things he considered of less importance to him than the helpless condition of his eyes, and he secured a prompt recovery.

There are few who cannot give one or two hours daily to the proper practice of some techniques that seem the most attractive to them. The positive idea of denying some amusement for an evening, and getting up early after a good night's sleep, in order to use that time for the recovery of fine normal vision, of itself creates new reactions in that part of the brain which has charge of the conduct of the eyes. Mental reactions are a dominating influence over the functions of the body. That established realization is a guiding factor today in the treatment of every other functional and organic disorder in the body. Why is it ignored and neglected in the treatment of the faltering functions of the eyes?

The more often an extended period of time is given in exclusive attention to the care of the eyes, the more prompt and more surprising will be the response that the mechanism of vision will give to that attention. We are being told now, from every kind of loud speaker, that our eyes are our most precious possession, and we should take good care of them. That is true. Can anyone imagine what the result would be if the conditions were reversed? Suppose the public was being reminded, from every direction, that when artificial lenses are fitted to the eyes, it rarely happens that the eyes are ever relieved of them. Being reminded, also, that the general experience is a progressive weakening of vision, with the imposition of stronger glasses, and an increasing helplessness of the eyes without the assistance of spectacles. It is being too optimistic to imagine that the public would gradually come to realize that taking good care of the eyes would be to treat them as we are treating the other functions of the body; and that doing nothing to correct the faltering in the mechanism of vision is not taking good care of them?

It is not necessary, however, to give long periods to practice. Even short periods are effective. Many of the cases that I have treated with success have been so occupied that they were obliged to take time out, from their work, in short periods. Personally, I found that an hour in the morning was always possible, and that period made such a lasting impression on my mind, that the subject was constantly recalled to my attention during the day. The mere conscious mindfulness, recurring at intervals, was an indication of an under-current in my visual center which was attentive and interested, and so I was really doing Bates work all day long. It is possible so to be mindful of the endeavor, and even to use the incidents of daily occupation as expedients in the practice of the Bates method.

Children readily grasp the idea of looking at the letters and figures on the black-board in the proper way. They make a game of not trying to see them—as I have shown them how to look at the letters on the Snellen Test Card in my office. They have found that a letter which they could not see at first, suddenly pops into view after they have practiced for a few minutes the technique of looking directly at it for only an instant, and closing their eyes when they do not see it. Sometimes I tell them the letter and have them draw it mentally with the eyes closed. They often see a letter in a few minutes of the alcove practice even when they do not know which letter it is. One boy of seven found letters that way, without being told the letter—in school he had not been taught the names of letters. When he pulled a D out of the atmosphere, he called it "Daddy", because that was the only name he knew for it. So I drew a

big M and S and B for him, because he knew Mama and Sister and Boy. Then we taught him the names of the letters on the Snellen Card, just so that we could use them.

Children have practiced that way with the letters on the board, and have blinked at other points in the room—a pupil's ear, a corner of the window pane, a spot on the wall. But above all, they learn quickly, when they are interested, to look softly at everything, never trying to see, and it helps them to do this when they have learned to be conscious of a feeling of soft relaxation in the muscles on the body. They are instructed to practice looking at distant objects when out of doors. It is explained that their eyes are resting when looking at any object in the distance, even better, perhaps, when quite far away, if they just look at it and pay attention to it, but have no idea of trying to distinguish it. They are taught to develop the habit of occupying the mind, when walking on the street or when at leisure indoors, with the practice of looking deliberately from one specific small spot to another and ignoring every other point, and observing each spot for only an instant. They are reminded to blink softly, without any tinned regularity, whenever they think of it, especially when walking on the street. Such habits help to relax the mind and the eyes while they are being practiced. They also serve to sustain an undercurrent of association of ideas which keeps the consciousness of the purpose and the method in mind, more or less constantly.

With adults the same practices can be used, in the office as well as at home. The time on the way to work, and on the way home, can also be used for these practices. The relaxation produced in this way adds to mental efficiency, and is a fine preparation for the work of the day, and the best kind of a rest after the day's work. This is not merely a theory. I could refer to different cases in which exactly those effects were secured. In a case of severe nervous indigestion, a business man used the morning and evening hours in that way and this served to relieve him, for two years now, of a condition uncured during eighteen months while he was under the care of three physicians. Where diet and medicine and hospitalization failed to relieve the subconscious tension which disturbed the stomach function, the use of his own mind on the subject effected a cure. A badly near-sighted girt, who had very little time except on her way to and from work, not only was enabled to discard her spectacles, but improved in general health from a condition of nervous unrest to a quiet, normal, and enthusiastic mental attitude.

Some are impatient about such use of the common incidents of daily life. They feel that only strange and mysterious procedures can be of any value in treating abnormal conditions. In several previous chapters, I have described specific practices that are directed by Dr. Bates, and that I have learned and used myself. I will add more such practices in this chapter. But my own experience has been, that in most canes those specific practices serve only as a beginning of improvement. Like any other mental or physical mechanism, the improvement in vision must be increased and developed, by constant repetition and consciously continuing until it becomes automatic. The suggestions above are offered with this idea in mind. I have found that the patients who carry them out are the ones who succeed; and those who simply interrupt the customary mechanical conduct of the day for an occasional period, and forget the Bates work entirely when they are not actually practicing, secure improvement very slowly, or even lose patience and interest and so fail to succeed.

In the chapters on Palming, the Sun and the Eye, Shifting and Swinging, The Snellen Card, and elsewhere in the book, I have already described specific practices suggested. It may be well to refer again to some of those suggestions. I trust it will not arouse any impatient reaction, on the part of any readers, when I continue to remind them of the purpose and the mechanism involved. In any field of mental effort, repetition is an acknowledged essential of acquisition.

Palming is perhaps the simplest and most effective of the techniques suggested. It rarely gives results at first. How many correct a bad habit at once? The developed misconduct of the visual center is much more inaccessible than the habit of talking when one should listen, or arguing on a subject upon which one is not informed, and such trivial misbehaviors. But how many are cured at once of such a habit when they realize it and decide to desist? Success in such an endeavor depends upon the degree of earnestness in the conscious mind. The proofs demonstrated as the result of Palming generally begin to appear very soon in any earnest effort. But if one will be fair enough to read the chapter twice before undertaking any effort, the first half hour, or hour, of practice will give more satisfying results; and if one will take the trouble to read it again before starting the next several practices with the techniques,

that reader will very soon have most gratifying proofs of improved vision, and will develop relaxation, and have a warm appreciation of the labor and gift of Dr. Bates.

The sun is perhaps second in importance. The eye belongs to the sun. It has developed under the kindly benefits of the sun. It would be worthless without the sun. All life depends upon the sun. Why then is it not to be expected that the sun will help the eye, when the eye needs help, since its help is sought by physicians in every other functional or organic abnormal condition of the human system?

Not to repeat what is already written, I feel that it is worth while to remind the reader that plenty of light is like plenty of fresh air. Many must depend most of the time upon artificial light. A number who have discarded their glasses, always read now with a 300-watt light. Some have the idea that such a practice would make it harder to read with a poor light. On the contrary, those who do use the 300-watt light have found that their vision has improved so much that they can see better with poor light than they could before; just as the man who has fresh outdoor air all day, is better prepared to withstand poor air than the man who spends his days in a poorly-ventilated office, and has very little fresh air during his sleep. It is a good practice to blink into a 300-watt light and watch the interesting after-images that come when the eyes are closed for a few seconds after blinking for half a minute. If one will occupy the mind entirely in contemplating deliberately the different tiny spots on the wires in the bulb, and then in considering carefully the varying after-images with an active interest, there will develop an immediate temporary improvement in vision. This is an excellent half-hour practice for general use.

Although there is much discussion now about stronger bulbs, it is difficult to get shades that do not direct the light rays so that one is obliged to sit directly under the lamp in order to get the full valise of the light. When a lamp is placed in the middle of a table, or behind a davenport, with the slant of most shades, the rays of light are directed into so nearly a perpendicular angle, that unless the book is placed on the table, or one sits sidewise close to the back of the davenport, the book will be outside the margin of the shade.

For the purposes of Dr. Bates' work I am in the habit of suggesting that one use a 300-watt light, with a good opaque reflector, so hinged that the rays can be directed, like a spot light, onto the object being observed. This gives a diffused light where it is needed, when it is needed, for the special purpose of the method. The light which is thrown up on the ceiling and reflected, may serve the purpose for which it is intended. In many tests I have demonstrated that the 200-watt ceiling light in my office, which is a clear bulb with a dull white reflector, does not suit my purpose of specific illumination. When a patient tests the sight on a Snellen Card at ten feet, using the office ceiling light, and then makes the same test with my 300-watt lamp, thrown on the card from an opaque reflector, the patient is almost always able to read, for instance, the 30—or the 20-foot line, quite easily, when with the office ceiling light the patient could hardly read the 50-foot line.

The use of the Snellen Test Card has proved to be a very helpful practice for patients of all ages. In the public schools of New York City and other cities, during the years in which the Snellen Card was allowed to hang in the classrooms, the pupils were always interested in it, and their vision was improved, according to periodic tests, and the testimony of teachers. Some of the teachers, by the use of the Snellen Card, discarded their own spectacles. This is according to the published specific testimony of Dr. Bates.

The Snellen Card should always be used according to the established principles of central fixation. The attention must be restricted to selected small spots, as described in detail in this book. The spot being observed must be easy to see, and all tension, or trying to see, must be deliberately eliminated from the practice.

The specific directions given in the chapter on the Snellen card will serve as suggestions for other practices of the same nature, which will occur to the imagination of the patient. It is a worth-while plan to practice with the card every day, even if only to blink as directed at every letter once a day—perhaps half the lines at one time, and the remainder at another sitting.

A patient of mine in Berkeley, a well-known woman, who discarded her own glasses with only a little help from me, talked with a Vassar graduate who went to Dr. Bates because her near-sighted eyes were getting worse. After one hour in his office in New York City, that Vassar girl went out and walked up and down Sixth Avenue for two hours. When she began she could not read one of the signs on the opposite side of the street. At the end of the two hours she was reading all of them. She had what I have learned to think of as an attitude of mind—an abiding confidence had been developed by that one hour of instruction. When I read the book of Dr. Bates I realized the simple, proved truth of his claim. Anything and everything in it confirmed my experience with my own eyes. It was the first reasonable explanation I had found for the variable conduct of my own eyes. My eyes would behave or misbehave regardless of whether or not I was wearing glasses. They had done that for many years. I did not accomplish my own cure in two hours, nor in two weeks. But I had a foundation of absolute confidence, based on experience and demonstrated facts. That young college woman began by wanting her own eyes. She had a responsive mind. She had confidence in herself, she knew that one learns to swim in the water, and learns to dance by dancing, and learns to play a violin by playing it, and she was a woman of action, so she promptly tested out her new discovery, and she won. The technique which cured her high degree of myopia was simply looking at signs which she could not see, one after another, with an attitude of mind which was confident, and determined to succeed, and persisted until the visual center responded to the demand she made upon it.

A patient of mine made a habit of looking for numbers on every house. She would walk half an hour, and not overlook a house. She never made an effort to see a number. That thought which she carried in her mind aroused her visual center, so that very soon she was able to read any number without the least effort. In carrying out that practice, she learned the sensation, mentally, of having her eyes "relaxed at infinity"—just as the shopper is relaxed mentally when she also is "just looking"—and has no least feeling of constraint. If it is possible to look out over the housetops, that is an especially good opportunity—looking softly at the many distant points in the picture. I have spent half an hour looking and blinking at the evening star, on a clear dark night, and kept my mind on the star by wondering about the power that keeps those light waves flashing through the ether for a period of time that we cannot comprehend.

For nearer work there are many opportunities. A type writer keyboard is often at hand. With a spotlight on it, the eyes behind any opaque reflector, one can select a spot on any letter, and in a short period of alternate blinking and closing the eyes there will appear some interesting after-images. There are highly-colored pictures in magazines, and different colored letters. There are lead pencils and penholders of different colors, plain or with periods made on them with black ink—single periods or rows of periods. There are figures on wall paper, and on picture frames—large frames or small frames. There are the angles or the dots of squares or diamond shapes, of various colors, on linoleum. Even in daylight these spots are good to practice with, and with a strong light at night, especially a spot-light, they make excellent opportunities for interesting after-images, and are very effective in securing relaxation, and a certain improvement in vision.

It is not in a multiplicity of techniques nor in working with strange figures that one must look for the best results. The familiar objects of daily life have a value due to the advantage of long acquaintance. Results are dependent upon the degree of interest and confidence, and the thoughtfulness with which the practices are carried out. The power is in the eyes. It is only necessary to have an earnest purpose, and a deliberate comprehension of the meaning of the directions, and a faithful devotion to the purpose. This has been proved for many years, and in thousands of cases. If these qualities are not in the endeavor, it is not reasonable to expect success, and it is wiser not to undertake it. It has been my experience, however, that almost all of those who have sufficient interest to undertake this work are rewarded with success.

CHAPTER XXVI

ASTIGMATISM

ASTIGMATISM is the commonest of the dysfunctions of vision. Probably almost everyone has more or less of this fault. The symptoms are often very different. It generally accompanies some other abnormal

condition of the eyes. Of itself it will produce blurring of the image, even to extremeness of failure to see. It produces the sense of straining in the eyes, with perhaps pain in the eyes, and in the head, and may be the cause of reflex nervous disturbances. The symptoms may be quite variable in the same individual. Sometimes, in mild cases, it is not always present; and it may be that certain specific situations apparently cause the onset of the condition; or conversely, they may serve to relieve it.

Astigmatism is defined as a refractive condition of the eye in which the parallel rays falling upon it are not at any spot brought to a common focus. Instead of a single point, they are spread into a diffused area on the retina. There are a number of types of this condition, which is referred to as an aberration. They are classified as latitudinal or longitudinal, regular or irregular, direct or inverse or oblique, simple or compound or mixed, myopic or hyperopic, and these classes are again compounded. These classifications are based upon an elaborate and meticulous study of the many various and complicated ways in which an astigmatic eye may, or may not, conduct itself. The variegated combinations of abnormal refraction which are described are all ascribed to one or two causes. The lens may be too near to, or too farm from, the receiving screen, the retina; or the refracting surfaces of the eye, (that is, the covering of the anterior end of the eyeball, and the lens) are curved too much or curved too little. The surface covering also may have the correct curvature, but may be too dense or not dense enough. Astigmatism, it is stated, may be congenital or acquired.

The vision of an astigmatic eye is not simply indistinct; it often presents different and remarkable peculiarities. Shapes may be changed, the parts of an object seen are not equally indistinct, the image seen may be multiplied, or distorted, or take forms which are actually illusions—inasmuch as they are misrepresentations. In short, impressions are registered on the conscious mind which can be accounted for only by the realization that the visual center itself is acting in an abnormal manner. The text books explain that the visual center may enter into the abnormal situation, when an object is not seen clearly, but often with the result that a further confusion is added. The imagination may try to correct a distorted image, and sometimes, in this way, a new dilemma is produced in the conflict between the insistence of the incorrectly refracted rays and the efforts of the memory and the imagination to register what those faculties believe to be the true image.

The above is perhaps a sufficient explanation, and enough of a technical description, of what occurs in astigmatism. To put the picture simply, it means that the eyeball normally should be perfectly round, and when it is not, a condition is present which is the cause of unequal refractive areas. The uneven external surface of the eyeball sends the light rays in wrong directions, and the result is very much like a photograph taken while the camera was moving.

Why does this happen? After reading many pages of erudite discussion, one finds his mind very much like his hand when he tries to hold water in it. The voluminous and exquisitely perfect descriptions of the manifold findings do not give any conclusive evidence of the cause, and do not offer any method for the correction of the abnormal condition. Such an abnormal condition is inherited, or it is acquired, early in life or late in life. The relief offered, consists in artificial lenses, with the frank admission that where the conditions are extreme, no relief need be expected from the lenses. Two strange ideas have been offered by named specialists, which propose to press the eyeball back into a round shape by devices for subjecting it to periodical external pressure.

Out of the fog of confusion, it can be gathered that the round eyeball has changed its shape. The changes in shape are not constant, and the irregularity is itself irregular. In many cases the condition grows worse, in many cases it does not. In many severe cases the condition improves, even after many years. There are many cases where it varies, some to a remarkable extent, better and worse. There are many cases in which it disappears—simply ceases from troubling—which, in medicine, is called a spontaneous cure.

The explanation of the cause which is given by Dr. Bates, accounts for all of these varieties and variations. There are six muscles fastened into the walls of the eyeball. When these muscles move with the perfect co-ordination which is their normal function, there is no astigmatism. When they impose an abnormal, irregular, and uncoordinated pressure upon the eyeball, some parts of the surface are subjected to a greater or to a lesser compression than is normal. That causes the flatness in one

meridian, and permits a fuller curve in another meridian. When the abnormal pressure is released the fault is corrected. That seems so simple that in the text books it has been entirely overlooked. So was Newton's law, for a long time. When Dr. Bates conceived this explanation, and realized how it solved all the unanswered questions, he undertook the very simple procedure of testing out his theory by stimulating the external muscles of the eye in different animals, and cutting them, and reuniting them. His research experiments proved the truth of the new proposition which his wonderful mind had conceived. It is very easy to confirm his findings. Strangely enough, no other worker has yet tried to do this. That is often the history of a discovery. Some independent spirit is going to do it. The mills of the gods grind slowly. The eye muscles in those cases act in an abnormal way, because they receive abnormal nerve impulses. There is an abnormal tension in the visual center. It is possible to create, or to increase, an astigmatism, by voluntary effort. It has been done, and is a matter of record. It is a very simple matter to stare so hard at a point that the image of the object becomes blurred and distorted. Anyone can do this, and thereby demonstrate tension and astigmatism.

The remedy which Dr. Bates pointed out in his method, is just as simple as his explanation of the cause. Relax the abnormal tension in the control center in the brain. That occurs spontaneously when there is a spontaneous improvement or cure of the condition. There is a natural law involved. The same law controls tension reactions in other functions of the body. Psychologists and psychiatrists have for years been treating in that manner, conditions which are analogous. Why deprive the eyes of the same benefit? The method of Dr. Bates uses the same kind of treatment, with techniques that are especially suited to the mechanism of vision.

A patient of mine, when he came to me at twenty years of age, had been troubled from early childhood with a condition which he said was near-sightedness. Having satisfied my self that it really was astigmatism, principally because he could not fuse the simplest of the stereoscopic photographs, I showed him how to relax. He responded so promptly, that with one hour's treatment, he was fusing most of the stereoscopic pictures. He was confident, and in earnest, and I had him so thoroughly interested in the technique, that he forgot his eyes. He just kept looking softly at the pictures, with an absolute expectation, and his visual center was roused into an interest in the procedure, and a normal conduct of the eyes and the mind was the result. The normal conduct of the factors involved, which developed in one hour, after years of abnormal behavior, has continued now, without faltering, for six years. The young man is in evidence here in Berkeley. There are others on my record with corrections just as remarkable.

The set of stereoscopic pictures is made for the purpose of encouraging eyes which do not focus in a normal manner, to become interested in an objective way. The proper way to practice with them is to use only the plain glasses furnished with the stereoscope. There should be no effort to make the eyes fuse the two pictures into one. With the eyes blinking softly at the pictures as they are seen, the card should be moved slowly back and forth on the slide. The pictures will endeavor to fuse, no matter how imperfect the fusing powers of the eyes are, if the mind is attentive and not concerned. If necessary, it is helpful for the mind to be made to visualize what the picture is when correctly fused. Seeing a parrot perched quietly on nothing but air is not startling; nor looking at a cage hanging without any support. But when they are seen on the same card, the memory and the imagination soon become so conscious of "what is wrong with the picture" that the fusion center receives an impulse. If the mind strains, consciously, it hinders the automatic readjustment. If it waits confidently, and prevents any other thought from distracting a perfect attention, the co-operation of the powers of the mind and the fusion center will result in a perfect conception. This may occur promptly, or only after a series of trials. It is quite common for eyes with good vision to fail to fuse some pictures and succeed with others. The parrot, for instance, may go into the cage perfectly, and then move in and out, and possibly conclude by staying out.

The first essential in the effort to cure astigmatism is to impress the mind with the conviction that the misconduct of the eyes is due fundamentally to a disturbed mechanism. The muscles are getting improper orders. Because they are not working with normal co-ordination, the shape of the eyeball is more or less slightly altered. The conscious mind cannot give specific orders to these muscles. That mechanism is automatic,—and outside the awareness of the conscious mind. To combat the abnormal condition by seeking the help of an artificial device is to ignore the inherent functions of the mind.

Education is a training of the physical, as well as the mental functions. Madame Montessori developed a similar system of education for children with abnormal mental reactions. The practice of medicine has been using such systems constantly for years. Such a system is being used successfully to educate shriveled and helpless paralyzed muscles, so that in many cases the muscles recover their normal power. In order to correct the dysfunction called astigmatism, one must take advantage of the same laws. It is no impediment to success that Dr. Bates was an original and independent pioneer in this work.

He was successful, and others are successful today. To simply deny this truth is not a scientific gesture. If one dares not undertake to test out the method, one should not obstruct, nor suppress knowledge of the facts.

If one will put out of the mind for a moment any actual experiences of failures, and proceed to carry out some of the expedients described in previous chapters, one will soon demonstrate the success which generally rewards the effort. Palming, thoughtfully and earnestly, but with the same impersonal alert interest that one gives to a favorite game, the mental relaxation which is the objective purpose of this practice, will impress a normal relaxed attitude upon the visual center, and there will be a distinct improvement in vision. This is not a theory any more than similar successes, in analogous fields of medical work, that are now established and constantly in evidence.

Proper following of the directions in the chapter on "The Sun and the Eye", will have an almost immediate effect that sometimes is astonishing. I have found, in several cases, that the treatment of the trunk or even a limb, with an infra-red ray lamp, has produced a fine specific improvement in vision, and relieved a blurring,' because of the general relaxation produced.

Different techniques suit the various specific symptoms of individuals. Often it is sufficient to rely upon simple mental relaxation. The chapters upon "Memory" and "Imagination" describe suitable practices. There is often some degree of myopia, and special methods for treating that element are found in the chapter on "Near-sightedness".

My own custom is to demonstrate the specific difficulties apparent in the case under consideration. The commonest trouble is more or less blurring of letters or pictures. This always varies, and may occur only after considerable reading, or under unfavorable conditions of light or print.

It is a good practice to begin by closing the eyes and impressing the mind, for a few minutes, with the idea that there is a soft feeling in the muscles. It is easier to secure this feeling in separate muscles, one after the other. There is no difficulty in securing such a sensation, if the mind is controlled so that distracting ideas are not allowed to interfere. It is often better to keep all thoughts of the eyes out of the mind. But it may be helpful to think of the eyes, in a specific and positive way, as having a soft and heavy and restful feeling. If one has read the preceding chapters in this book, the knowledge of the method will be of the same value in the effort, as is any knowledge on any subject. The chapters should be read more than once.

An excellent general practice is with the Snellen Test Card of letters. The different ways of using the card have been described in a special chapter. To practice reading, when there has been blurring, or indistinctness, allow the eyes to flash open just long enough to see the first word, or perhaps only the first letter of a word at the beginning of a line. Do not allow the eyes to pay attention to more than that, and close the eyes instantly and note what was seen. If it was clear, flash the eyes at the next word the same way, and close them instantly. It often helps if the eyes are kept closed long enough between the flashes to recall some color that comes easily and rests the eyes. If the first word, or the first letter, is not clear, continue to practice on the first letter until it shows clearly. If not successful with this practice, instead of looking at the letter, look under the letter, at the spot of white paper. It is not necessary to stare to see a spot of white paper, and the eyes will relax. Keep recalling the fact that in order to see, it is only necessary for the eyes to remain passive, and allow the rays of light to do the work. That consciousness is very helpful in relaxing the tension which is causing the trouble. By looking at a letter, or a small word, for an instant only, and then closing the eyes for a few seconds, while the mind keeps all other thoughts out, it will very soon develop that the letters will be sharp and clear, and

appear blacker than the other letters in that area. When one word has been cleared up so that it remains sharp and black, even when looked at for a' good part of a second, it will be found that other words will readily be seen the same way. That is because the eyes are working better. It is worth while to be patient and insistent with one letter, or one word, until a satisfactory result is secured. A confident attitude of mind almost always accomplishes this in a few minutes.

Another good practice is to begin at the left end of a line and allow the eye to travel across while looking only at the paper immediately underneath the print, blinking the eyes softly, and not trying to read the words. The value of this is the schooled effort of the mind not to try to see. The rays of light, at the same time, are reflected into the eyes, while they are relaxed. A more advanced practice of this technique is easily learned, and is generally very gratifying in results. While blinking softly, and directing the eyes from left to right, imagine, make-believe, there is the finest thread of a line, whiter than the white of the paper, running across close under the printed line of letters. Pay no attention to the print. Keep the mind on the white line. Then close the eyes for a few seconds, and continue to think of the white line only. Repeat by blinking across under the line of letters, and making believe the white line is there, and closing the eyes and waiting for it to appear. Very soon, some letters or some words, will stand out, here and there, apparently plainer and blacker and more widely spaced, than the words around them. This is because they have been more deeply impressed on the visual center, while it was relaxed and attentive; and it will be found that the vision has improved. Much depends upon the degree in which the mind is absorbed in the technique, and all thought of any difficulty in vision is forgotten in carrying out the practice. Each flash of new power in the eye is a proof of what can be accomplished, and the proofs come very soon.

It is surprising, to one not familiar with the conduct of the eyes, to find the marked effects that are sometimes produced by the simplest kind of practices. One cannot realize, in a moment, the factors at work in a mechanism of which one has had no previous knowledge. To blink softly at a blank wall, of any color, or at a white sheet, or at a large dull black cloth, seems to some, a strange and trivial procedure. But when the trouble with the eyes is nothing more than a tension in the muscles, caused by a tension in the visual center, that very simple technique, when it is done carefully as directed, has a very relaxing effect. It is very easy for one to demonstrate that.

Let the strong sun shine on the closed eyelids for a period, with the body comfortable, and the mind entirely engaged with some pleasant prospect, and find how all the muscles feel soft and liquid. Then open the eyes and notice how much clearer everything appears. But do not demand, just expect, and do not let other thoughts intrude and distract.

Close the eyes and make believe that there is a familiar hill-top in sight, or is tree, or some other picture that comes readily into the mind. Float down the stream in a canoe. Swing in a hammock. Picture a new hat or pretty dress, or better, some most familiar face. Imagine a perfect pair of eyes—not your own eyes—just a pair of eyes that are normal and fine that can see the tiny spots, and carry colors in the mind, and distinguish things in the distance and never get tired.

Do not treat the matter like a strange and ominous and incurable disease. Think of astigmatism as the established facts prove it to be—a dysfunction, a misbehavior on the part of the eyes, a condition which constantly varies in its degree, as everyone who has it knows, and often disappears, one might say, without any help. There is so much accumulated evidence of the power of the mind over abnormal conditions of the body, even in the tissue changes of disease—authentic records accepted by the medical profession as proved cures, that it is no longer possible to disprove the reports of cured cases of astigmatism by merely dismissing them as a matter of personal opinion.

Those who have only slight disturbances of vision will be wise to remember that generally the different varieties of those disturbances begin that way. Severe conditions are found in eyes that had fine vision for many years. It is a simple matter to correct slight dysfunctions. When the habit is confirmed and one has become accustomed to dependence on spectacles, it still is often an accomplishment easily possible. Your vision is a very precious possession, take good care of it, but do not desert it, by enslaving it to a pair of glasses, and probably paying a life penalty for the neglect of a little simple care.

CHAPTER XXVII

PRESBYOPIA

WHAT is Presbyopia? That is a hard question to answer. The Medical Dictionary explains that it is not a disease, but that it is the physiology of vision due to advancing years, or to old age. It is also stated that the condition is dependent on diminution of the power of accommodation from loss of elasticity of the crystalline lens, causing the near-point of distant vision to be removed farther from the eye. Loss of elasticity of the crystalline lens means a hardening of the fluid content of which the lens is composed. This condition of old age of the lens is supposed to begin at about forty years. It is explained that it may begin prematurely, that is before forty years, and it is stated that in those cases the cause is unknown. These statements are very simple, but there are many questions which they do not answer. Although this is not an uncommon condition, it cannot be questioned that the great mass of people is not afflicted with presbyopia. All those that have no difficulty with their eyes, at sixty, and seventy, and eighty, and ninety years of age constitute very plain exceptions to that which is offered as a sort of law.

Those who have had the symptoms of presbyopia for a number of years, and then had a return of good normal vision, would seem to constitute some kind of a contradiction to the explanation that their lenses had degenerated into a hardened condition. There is no doubt that there are many such cases in evidence. In "The Autocrat of the Breakfast Table," Dr. Oliver Wendell Holmes refers to such a case in the following words:—"There is now living in New York State an old gentleman who, perceiving his sight to fail, immediately took to exercising it on the finest print, and in this way fairly bullied nature out of her foolish habit of taking liberties at five-and-forty, or thereabout. And now the old gentleman performs the most extraordinary feats with his pen, showing that his eyes must be a pair of microscopes. I should be afraid to say how much he writes in the compass of a half-dime—whether the Psalms or the Gospels, or the Psalms and the Gospels, I won't he positive."

Dr. Holmes had a fine sense of humor in his writings, but always a subtle keenness which was never trivial. Above all, he was a practicing physician, and it is unthinkable that he would publish a statement as full of vital human interest as that, and mean it only as a cheap and misleading joke.

In my own practice, Mr. Burns, previously referred to, for forty years had all the symptoms of what is called presbyopia—in brief, poor vision; he also had the symptoms of astigmatism, which are often indistinguishable; and certainly a positive near-sightedness. His sight was poor for distance, and he could not see to read without glasses. In a few weeks, his sight improved for distant vision, and he could accommodate to read quite small print a few inches from his eyes. This vision, which he recovered at eighty-five, he retained until his death at eighty-seven. Whatever was the condition of his lens, a wonderful improvement was secured by his own alert and enthusiastic attention. Mind over matter, if you like. But mind certainly—his eighty-five-year-old mind; and eighty-five-year-old eyes.

The common experience is that eyes gradually lose power in the later years of life. This is true of eyes as it is true of every human function. But there are those who retain their organic vitality until they have exceeded by many years, the "three score and ten" which was allowed them by that self-constituted authority in the Old Testament. We are told in the text books that some develop what is called presbyopia, pre maturely, and the reason cannot be explained. Likewise, for those who advance to the end of a long life without developing any presbyopia, no explanation is offered in the text books.

"Presbyopia", according to the text books, is a condition of physiology, but it omits to remark that it must be an abnormal physiology. It may develop "prematurely", in early life. It may develop with the onset of "old age", at forty. It may develop forty years later. It generally does not develop at all—according to accepted authorities, thousands of millions never have had it. It may be present for many years, and then disappear as it came, without any apparent reason. There are many who have very poor vision for reading, for example, but who take off their glasses, and accommodate perfectly even in threading a needle. If it was caused by a physiological and inevitable hardening of the lens, Helmholtz must have been wrong, because every aged lens which accommodates disproves his theory. That is what a standard international text book means when it says that the Helmholtz Theory does not explain all the phenomena of presbyopia. The text book first approves of the theory of Helmholtz—which was

that the lens accommodated by changing its shape, and which he offered only as a theory—and then points out that either he was wrong, or the theory of presbyopia is wrong. The conduct of the eye, in these cases under discussion, is physiological, as is claimed. But the physiology is dominated by the psychology. That is wily the records are so different and so variable. For the same reason, the condition is not a hopeless prospect. The correction of presbyopia involves the same treatment as is indicated in the cure of other physiological dysfunctions.

Eyes grow old, as do hearts and livers. But when vision begins to falter before the body is twenty years old and every other function is normal, it is not "a normal result of growing old." It is a manifestation of the infinite variety of the moods of astigmatism. When the old gentleman whom Dr. Holmes reported, cured his presbyopia at an advanced age, he responded to some impulses which aroused his conscious mind into action, and that which he demanded of his eyes, the visual center granted. There is a change in the power of vision which is spoken of as second sight. That old gentleman secured it. Who can say that the possibility of such an accomplishment was not aroused in his mind by some positive knowledge of the occurrence of what be demanded for him self? A simple denial that this happens, is not an answer to the question, when it is known that it does. To offer a contradictory explanation of the situation is not a scientific reaction. The practical interest in the discussion is the answer to the question as to the possibility of the cure of presbyopia and the procedure to employ. The same laws apply as are concerned in other abnormal visual functions. Correct the physiological dysfunction. Order the mind to constrain the mechanism of vision to function in a normal manner. This book contains all the directions that are necessary. For different cases, various practices are suitable. The results will not always be the same. It was the spirit of the old gentleman, not the method, that produced the result in his case. Any case of presbyopia can be improved or cured. That is the law.

CHAPTER XXVIII

MYOPIA AND HYPEROPIA

MYOPIA—near-sightedness—is described in the text books as the condition in which the retina is beyond the principal focus of the eye, so that the refracted rays emanating from a distant object, come together before they reach the retina. It is explained that this may be caused by an increase in the convexity of the cornea (the membrane covering the front of the eye), or of the lens, or by the pushing forward of the lens in a diseased condition. Or it may be caused by the rear end of the eye being pushed back, either as a result of a diseased condition, or by what is called an overacting developmental process. It is explained that the lens of an infant is excessively curved, and gradually flattens, and that the eyeball naturally grows longer to match the lesser curvature in the lens. In other words, in order to focus nearby objects, either the lens must be round enough, or the eye must be longer. The text books explain that in an eye which is near-sighted, generally the fault is that the lens has a proper curvature, but the eye is absolutely too long. The text books state that this excess of length, in fact, accounts for all, or nearly all, of the refractive errors, so that from the refracted error found, the length of the eye may be computed. The text books also state that this length is a variable factor. It may be extreme, even in youth, and continue to increase; or it may show only a very moderate degree. In advanced myopia this excessive length may diminish or disappear, or it may increase.

The books explain further that myopia occurs in school life, and among those who use their eyes on fine print or close work. On the other hand, it is not found in savages. Hence the inference is drawn that myopia is caused, essentially, by overstraining the eyes for near work. There are other facts of-red, however, in the text books, for which further explanations were considered necessary. For instance, it is pointed out that only a fraction of those who are subjected to the strains mentioned become near-sighted. Various possible factors or influences are discussed as the causes of a predisposition in that fraction so affected. Hereditary tendencies are assumed—of various kinds and different degrees.

Some very interesting findings are recorded. Moderately near-sighted eyes, we are told, do not need glasses. In myopia of high degree, on the other hand, it is explained, satisfactory distant vision is not attained even by glasses. Also, in this class, even closeup vision is frequently defective. Further, those eyes with a high degree of myopia tire rapidly, are sensitive to light, and prone to see the specks called "flying flies". Changes in tissue structure, and changes in the fluids of the eye, are found. In eyes with

the higher degrees of myopia, changes in shape may be found-, then, again, they are not found. We are told, also, that an astigmatic, in trying to see, accommodates so that he can see objects clearly and, by so doing, often makes himself temporarily myopic; and by continuing such efforts he may make himself permanently myopic. But the books point out that in these cases, it is not possible to say that the myopia would not have developed anyhow, for the various suggested reasons. Besides the use of glasses, the books direct good light, always having objects as far removed as they can be seen, and strict limitation of the use of the eyes, even to the dropping of all studies, et cetera, for a long time, or a change of occupation. It is significant that resting the eyes frequently by looking at a distance, is pointed out as very advantageous treatment.

It is frankly declared in the book that the work with which many students have to struggle should be reduced to the proper standard. The way they are taxed, both in school and at home, is detrimental, not only to their eyes, but certainly to the mental and physical development of unfolding powers. Suitable physical exercises should be made part of the curriculum, and should constitute an intermission between hours of mental application. Work should be done under favorable conditions. Proper ventilation is very important. Seats suitable to each individual child should be provided. Children should be taught correct posture. These precautions are to prevent the occurrence of any abnormal tension. It is stressed that illumination should be of sufficient intensity—generally in the past the light has not been sufficient. There should be no glare, and no contrasting shadows. The light should be diffused, as the sunlight is diffused; and it should not be directed into the face. The above suggestions are contained in text books on the eye. I have referred before to a book which directs the use of very poor light. It proposes to shut out the sunlight, and pictures a room with shadows on everything, and a dim light from semi-indirect illumination by poor lamps on the ceiling.

"Truth is like the spokes in the hub of a wheel." There are many spokes. Who would think of building a wheel and leaving out one spoke? Crécy wrote that the fate of a battle might depend upon a cotter-pin (meaning that one wheel coming off a cannon carriage might turn the victory into defeat). Oliver Wendell Holmes reminded his hearers that when a discussion had been decided, it had happened that a member who then threw a fact into the ring like a bomb, changed the minds of the other members. Columbus believed, from known facts, that the world must be round, and on the way to India he found America. In the text books on the eye many specific facts are recorded with meticulous exactness. But one does not find that any scientific research has been made to enlist the power of the visual center in correcting an abnormal function on the part of this mechanism described as psychic.

The doctor who called Dr. Bates a quack, because Dr. Bates had already enabled medical men to discard their spectacles after that doctor had fitted them, deliberately ignored the known fact that many have discarded their spectacles because they had discovered that their eyes had ceased to be near-sighted, and they could see better without the spectacles. Spectacles are being discarded today for the same reason. The text books record data which plainly implies that patients under observation could also discard their spectacles. But it does not seem to have occurred to these students of the eye to follow the path taken by research workers in the other fields of medical science, and investigate the cause and the significance of the phenomena which are strewn all along the pathway of their own field.

Dr. Bates made his discoveries because he had a mind which could not help investigating those phenomena. It was not hard after that. Compared to some other fields it was very simple. The facts are spread out in plain view. All his work was right in the clinic—his problems, his discoveries, and his success.

The principal treatment for near-sightedness recommended in the text books is artificial lenses. Best there is no promise that the spectacles will correct the fault in vision which causes the near-sightedness. Sidler-Huguenin, a recognized international authority in this field, stated frankly that glasses are "of but little avail to prevent either the progress of the error of refraction (near-sightedness), or the development of the very serious complications with which it is often associated." He wrote that of the thousands of myopes treated by him the majority grew progressively worse, despite his skill in fitting their glasses. He disagreed too, with some conventional suggestions. For instance, he believed that using the near-sighted eye was better than sparing it, and recommended that—it-be used.

Artificial glasses, therefore, are never a remedy; they are only an expedient, and are, in fact, an assertion that there is no treatment which will cure, instead of increasing, the defective function of vision. The near-sighted eye, under the care of the best men who are fitting glasses, commonly becomes more and more near-sighted, and needs to have new, stronger glasses constantly. There is no apparent effort, or even consideration of any investigation looking toward the correction of the abnormal functioning of the mechanism that is involved. This sounds like an extreme statement, but the situation is obvious. All the preventive measures cited in the books have been in use, and at the same time the artificial lenses are rapidly increasing, and are still being given the first place as the relief suggestion. In Germany, they were tried for years in vain. They were used by Sidler-Huguenin for a life-time and pronounced of no avail. The men in this field claim that near-sightedness is caused, primarily and principally by inherited tendencies. They consider that the various unfavorable influences, such as faulty lighting, extreme or prolonged use of the eyes at near work or minute detail, improper postures, et cetera, are secondary influences; and the record seems to support such a contention.

The implied verdict that myopia is incurable is untenable. Allowing for all the possible inherited tendencies, and the aggravating influences in the environment, such an attitude is still out of step with the march of progress in the science and art of the practice of medicine. Alone, the work of Madame Montessori is an answer which silences it.

The German professor previously referred to, in his letter to me, claims that in what he calls a true case of near-sightedness, which he says is always inherited, the condition cannot be cured. But he also writes that so-called near-sightedness can disappear. He refers to a case with which he is familiar—a man who had been near-sighted until he was twenty. His condition varied considerably. He found his sight very much improved when he was at sea; but always quite poor when he was in Munich. When that specialist examined his eyes, at the age of thirty-three, he found him far-sighted instead of nearsighted. The Professor accounts for the history of those eyes by explaining that the near-sightedness had been caused by an accommodation muscle tension of increasing severity and exceptionally long duration. The far-sightedness which had displaced the near-sightedness, he would probably account for as a new and different muscle tension. The significance of his explanation is that it explains the myopia and the hyperopia in the same way as Dr. Bates does. The professor classifies the record of this case as a psychological disturbance. If any condition is due to an inherited tendency and an unfavorable environment, insanity is a specific example. It likewise was treated as a hopeless and incurable misfortune. It now is being cured, and the methods and the success in this work, are both increasing. Strange to say—or is it really strange?—the methods are actually very simple—just as simple as the method of Columbus. Like Newton's discovery of the law of gravitation, the cause and the cure of myopia, likewise are to be revealed by a study of the apparent phenomena. In this field they are in plain sight, and their significance is clear.

It is not necessary to discuss the complicated cases of myopia, in which there may be tissue changes, that probably were produced by continued abnormal function, and which might possibly be changed back to normal by proper treatment. Such tissue changes, cured by corrected function, are in evidence. Ulcer of the stomach is a specific and a common illustration—it comes and it disappears, spontaneously, and may be habitually recurrent. Cures of that condition have been reported by competent specialists who used, in one series of thirty cases, nothing but mental treatment. The majority of myopes have no tissue changes in their eyes. The degree of myopia varies considerably in most cases. Often the condition disappears spontaneously, in young and in old—after it has been present a few weeks, or after it has been present for many years. That has happened without the conscious knowledge of the owner of the eyes. It is being relieved too, in young and old, sometimes very promptly, by influencing the subconscious mind to do deliberately, upon an order, what it often does spontaneously, or without any conscious order.

It may be that too much is being written here, about the background and the psychology and the mechanism involved in this question of curing myopia. Often I have been asked, impatiently, "but what do you do?" Some "first visit cures" have occurred with very little explanation or effort. The attitude of the mind of such patients is already set, or changes in a moment to a receptive attention, which is not hindered by the conscious or unconscious impression that nothing else but glasses can help their eyes. This book is intended as a teacher, and must meet in advance the questions that naturally arise under

the conditions. I have tried to anticipate the difficulties that the patients may meet, by giving their minds assurance in the substance of things hoped for, the evidence of things not seen.

Everyone is familiar with the mental experience of having held a belief, about a person or a subject, which seemed to be warranted by apparent facts, and discovering, sometimes, that the facts were misinformation, or that their judgment and conclusions were unwarranted. The prevalent conception about myopia is a hardened-in-cement mental attitude that the only answer is spectacles. The first step toward a cure must be to become conscious of that conception, reason it out, and then obliterate it, and forget it.

Professor Herrmann of Breslau, reporting upon his observations of over ten thousand children in German schools, found in the village schools one per cent of myopia, twenty to forty per cent in the higher schools, thirty to thirty-five per cent in the gymnasia, and fifty-three to sixty-four per cent in the professional schools. Similar investigations in other countries confirm his findings. Only a few of these cases were obliged to wear glasses. The strain of near work was blamed for the conditions. The explanations offered are contradictory. Tscherning, a noted authority, wrote that: "A satisfactory explanation of the mechanism by which near work produces myopia, has not yet been given." Everbusch wrote: "It is not yet determined how near work changes the longitudinal structure of the eye." But it is established that myopia is found in those who never went through the stress of near work. Myopes are therefore divided into two classes, one caused by near work, and one not caused by it. But a comparative analysis of the statistics reveals that often the higher percentage of myopia is found under most favorable conditions. Also, the heredity factor is not sustained by some findings. For instance, the Indians at Carlisle are quite subject to myopia, although their heredity would not warrant that expectation. The constant near work of ancient needle women, and the marvelous gem carving of artisans who spent their lives at it in the early centuries, as their fathers had done, did not develop myopia, or pass it on as a heritage.

If one will accept the explanation that myopia is caused by a tension in the visual center in the brain, that law can be taken as an interpretation of every situation found in the discussion. The savage can become tense, as well as the student. The child favored with every mechanical advantage, may still have a mental concern, conscious or unconscious. The myopia may appear in adult life because of a new situation. The increase, or decrease, or disappearance, or reappearance, or any variation, will also be explained by the condition in the control center. That is the answer of Dr. Bates.

In the endeavor to cure myopia, the purpose is the same as with every other dysfunction. It is never an effort to teach the eye how to function correctly. That mechanism knows how to function, and no man knows how it is accomplished. The only purpose is to relax the abnormal tension in the visual center. This simple conception should be fully realized. I have often found that a patient is unconsciously oppressed with vague idea that it is necessary to teach the eye all over again, how to perform in the right way. When the visual center has been relaxed—relieved from the stress that is constraining it, the normal function returns to the mechanism, and sight is normal. Those who have success in a short time, are not inhibited by disturbing impressions that are founded on misinformation. So let us begin with the encouraging confidence that the eye knows what to do, and it will help very much toward a better understanding of how the practices operate.

It is helpful to remember that many have ceased to be near-sighted. This experience is so common that it cannot be questioned. Often this happens late in life, the patients finding that they have secured what is called second sight. Oliver Wendell Holmes wrote of such a man. Again, many women in later life are near-sighted for reading and other purposes, but can thread the eye of a fine needle without difficulty. In previous chapters I have reported some typical cases in which myopes have recovered good normal sight after being nearsighted for years. These cases are in evidence, and were secured by the method of Dr. Bates. In special chapters the details of practices are given.

When relaxation is secured, whatever special technique is used, myopia is relieved just as other tension conditions are. There are some practices however, which are more suited to this particular variety of abnormal vision. The specific fault is a failure to adjust the focus to objects that are not near to the eye. Dr. Bates claimed that the myopes cannot see objects that are not nearby because the eye is straining

to see them. When the eye stops straining, the light rays reflected from those objects are permitted to focus on the retina. It is helpful to remember, and to remind the eyes constantly, that when the rays of light are permitted to register properly, the difficulty disappears. This means that the rays produce the impulse, and the normal eye acts automatically, outside of the consciousness. The process is essentially different from a voluntary muscular effort. The trouble is caused when the eye tries to see—instead of allowing the rays of light to enter the eye like the sound waves enter the ear, and the fragrance of a rose impresses the sense of smell. Therefore, the first idea to impress and retain, is that one must stop trying, and adopt an objective attitude of mind which occupies the undivided attention with the practice one is carrying out. Such an attitude of mind engenders relaxation in the visual center and that is all the practice is intended to accomplish. When a myopic eye improves in vision, as it does to some degree constantly during the day, some measure of relaxation has been produced spontaneously. When the abnormal tension recurs, it hinders the eye again. When one ceases to be near-sighted, spontaneously or under treatment, the tension has been eliminated. It is idle to ask, quizzically, how such a serious condition of eye-sight can be produced so easily, and cured in such a simple manner. The facts are in evidence, outside of any knowledge of the method of Dr. Hates. The explanation is in accord with other similar recorded reactions in other fields of psychologic research.

The condition called hyperopia is essentially similar to myopia. The effect on the eyesight is just the opposite from the effect of myopia. It is called far-sightedness, because there is less difficulty in seeing objects at a distance than in seeing when they are nearby. But actually, sight is poorer at any distance than with the normal eye. Although the effects on eyesight are so different, the causes of the condition, as given in the text books are the same as the causes given for myopia, and the dysfunction of vision is of the same nature.

Hyperopia, commonly spoken of as far-sightedness, is described in the text books as a condition in which the retina lies in front of the principal focus. The ordinary hyperopia of young persons and adults is an axial hyperopia, due to the fact that the eye, which was primarily too short, has not, in the process of growth, elongated to the point of producing emmetropia (an eyeball of proper normal length). It is stated that a very large proportion of adults have a hyperopia of this sort, which may, therefore, be regarded as a normal condition. Other forms of hyperopia are described. For instance, when the eyeball is not too short, but there are changes in the curvature, density, or position of the lens, or in the curvature of the cornea, or there are abnormalities of development, or even conditions of tissue change. Different irregularities in the condition and the conduct of these eyes are described. In this chapter a case report has been quoted, from a German specialist who found a patient far-sighted at thirty-three, who gave a history of having been near-sighted until twenty. The degree of the near-sightedness was variable. At sea he was not near-sighted, but in town the near-sightedness returned. At thirty-three, examined in town, instead of being near-sighted, he was far-sighted—just the opposite condition. In other words, that young man's eyes must have been longer, changed their shape back and forth, according to circumstances, and at thirty-three were found to have an entirely different shape. The German professor did not report any tissue changes in the eyes, he said that the conditions were caused by an extreme and long continued muscle tension, and the changing shapes were due to psychological disturbances. In the text books it is explained that so-called far-sighted persons do not necessarily see better at a distance than others, and may not see even as well. The difficulty is in seeing objects at a close range, and this sometimes is quite marked.

If the four muscles which pass forward on the four sides of the eyeball, contract sufficiently and in unison the eyeball is made shorter in a horizontal direction, producing the condition described in text books as an axial hyperopia. Considering the case reported by the German specialist, and his explanation that the changing lengths of the patient's eyes were caused by abnormal muscle tension, the situation can be interpreted by the explanation of Dr. Bates that the two muscles wrapped around the middle of the eye sometimes made the eyeball too long, and later the four muscles on the sides made, it too short. For that reason, the treatment for hyperopia would be the same as for myopia.

CHAPTER XXIX

STRABISMUS

SQUINT, which technically is called strabismus, is an abnormal condition in which one eye deviates, or both eyes deviate, instead of pointing directly toward an object being looked at. The customary observation of such conditions is so casual that very few have any knowledge of the different forms in which squint is recorded. The abnormal deviation may be toward the nose, or outward, up or down, or in some oblique direction. When both eyes squint, they may assume similar abnormal directions, or may deviate in directions that are dissimilar. In some cases both eyes may look straight at the same object when both are uncovered, but when covered, either eye may deviate in any direction. That specific type of abnormal action is spoken of as insufficiency.

Deviations may be constant, always present; or intermittent, not always present. They may be continuous—when the degree of deviation is the same during distant and near vision; or they may he periodic—when the degree is greater for near objects than for distant ones, or the reverse. They may be concomitant—when the amount of deviation is constant; or non-comitant when the degree changes, as the eyes move in different directions. These different conditions are often mixed, and the various combinations have specific names. Deviations always confined to one eye, when eyes are open, are known as monocular (one eye), right or left; and are called alternating, if sometimes one eye deviates, when both eyes are open, and sometimes the other eye deviates. There are other details described, some of them very intricate. There may be good vision in both eyes, but the refraction may be unequal. This inequality of vision may vary, one eye or the other having the better vision, and that variation may be irregular. When only one eye deviates, it may have very little vision.

The reasons given in the text books for the development of squint involve so much intricate description and explanation that they would have no place in a book like this, which makes no pretense of being a text book. The predominating fundamental cause is an inherited predisposition. Inequalities in the two eyes, involving their refracting powers, and excesses or deficiencies in functioning, are discussed at great length. The poorer sight of one eye, because of some of these abnormal factors, is sometimes an apparent causative influence. It is explained that through different kinds and degrees of faltering co-ordination, there is a lack of development in the fusion-faculty. The fusion-faculty is a function of the mind. It acts, so it is explained, by means of a cerebral nerve center, called the fusion center, the site of which is undetermined. When both eyes are normal, and both look, there is solid or stereoscopic vision. That faculty of the mind fuses the two retinal images, so that an object appears single and clear. When a clear single image is not seen, different abnormal reactions are produced. These reactions have different effects on the mechanism of vision as a whole, and specifically on the variable conduct of the eyeball.

In standard text books some of these abnormal functions are attributed to hysteria, traumatic neuroses, neurasthenia, anemia, and debilitated conditions however caused; and it is stated that they occur even in those who are apparently healthy. It is common knowledge that the beginning of a squint is often noted following some sickness, generally in childhood. It may follow a mental shock. A girl of seven was thrown down by a big dog, and the result was an instantaneous squint involving both eyes. The text books state that certain causative factors are not located in the muscles that move and may hold the eyes in abnormal positions. The books point out that until very late in the development of most cases of squint, the rotations of the eyes are normal, indicating that the power of the muscles is neither impaired nor excessive. The books conclude therefore, that the changes which take place are doubtless central, due to excessive stimulation of the center for one movement producing inhibitions for the center of the opposing movement, and vice versa. It is only late in the course of the condition, so it is explained, that there is developed an hypertrophy, or contracture, of one muscle, and atrophy or stretching of its opponents. The effects of such unequal developments are the causes assigned for the various abnormal positions found in cases of squint. We are told that a moderate proportion of cases of squint do, however, develop from a true muscular defect. Sometimes abnormal conditions of the tissues of the eye interfere with the fusion-faculty, and a complicated mechanism forces the affected eye to conduct itself in an abnormal manner. The accumulation of findings which have been recorded with infinite care has

not yet enabled the text books to offer any specific course of treatment that is aimed at the admitted fundamental central cause of the disorder.

We are told that the many abnormal functions, on the part of the different factors involved, are only secondary conditions. In the ultimate analysis, the books explain, the primary fault is in the conduct of the central control. That central control is responsible for the various and complicated interlocking abnormal stimulations and inhibitions. The earlier practice of cutting the muscles attached to the outside of the eyeball proved so unsatisfactory that it is not being offered as the remedy to be used at first. It is stated specifically that whether an operative procedure does, or does not, make the eyeball stop pointing in the wrong direction, the operation has no curative effect on the sight of that eye. Often any correction secured in the position of the eyeball is lost, sooner or later, or it is replaced by some other abnormal position. The hope for the relief of this specific disorder in the mechanism of vision is based primarily and principally upon whatever correction may be secured by treatment with artificial lenses. It is stated that when there is an "out-growing" of the squint, the defective vision of the formerly squinting eye remains, and real vision, with normal co-operation by that eye, is rarely restored. That word rarely, in the standard text book, is a pregnant word. It is not explained. Why not try to account for those admittedly rare cases? Some of the grandest discoveries in the field of medicine have been made, and relief from epidemics has been secured, on phenomena less obvious and more obscure.

Thus far, I have described briefly, the explanations one finds in a standard text book regarding the many different forms of squint, and the theories which are offered to account for the abnormal conduct of the different factors involved. I will now present the conception of Dr. Bates which recognizes that the fault in the mechanism of vision originates in the center in the brain, and endeavors to correct that fault by influencing the conduct of that center. Since it is established that some eyes afflicted with squint, as reported in the text books, not only become straight, but recover normal vision, there is, then, a way to actually cure them. That way is the way by which they cure themselves. The laws of that way are not known. But the symptoms are quite evident, and the causes are indicated in what is known of the mechanism. The established facts would seem to point out the line of endeavor. It is that line of endeavor which is the foundation of the successful methods of Dr. Bates.

Suppose we consider some plain facts by recalling for examination some examples of what occurs. For instance, that girl of seven years, who was knocked down by a big dog. In that moment, both of her eyes became crossed—she had a typical case of strabismus. This was not the result of a continued straining at nearby, or at far-off objects (which is given as the commonest cause of strabismus). It was an instantaneous result caused by an extreme mental shock.

A case of my own illustrates a different aspect of the subject. A boy of six who was bright and reliable mentally, had a peculiar, alert, tense, mental attitude. Both of his eyes were constantly crossed, pointing inward. The degree of squint varied, and any excitement would so stimulate the convergent obliquities of the two eyes, that they would jerk around without any order. I have frequently stopped that turmoil of his eyeballs in a moment by distracting his mind from some disturbing thought, and interesting it in some pleasant idea. Several times I had only to say quietly, with a friendly smile: "Put on the brakes little man, your front wheels are shimmying." By different practices of the Bates method his eyes gradually became straight. The vision of both of his eyes also is normal. If it is objected that the practices used did not influence the cure of the condition, there are two answers. First: an unsupported contradiction like that is not a scientific statement. Second: if he is one of those cases which secure a spontaneous correction of the squint and also recover good normal vision, what explanation is offered by the objector for the recovery to normal, or rather, why is some explanation not sought?

A young woman of twenty-two came with the following record. Her left eye had been crossed from earliest child hood. At twelve years of age the left eye became straight, and the squint was transferred to the right eye. She had worn glasses for ten years. During two hours of treatment in my office the squint in the right eye disappeared entirely. She discarded her glasses at once. It is two years now since that treatment. Her eyes have remained straight, and she has good normal vision. That record is correct to date. The patient is employed as an accountant with a well known San Francisco firm.

Her brother had a right eye crossed for a lifetime, and it is so crossed now. There are three other cases of squint in near relatives, so an obviously hereditary tendency is a factor in this case. Her cure was a plain illustration of an autosuggestion. She was convinced and confident, and ready for action before she came to me, through the reports she heard from an intimate friend, and her own mind cured her.

An illustration of the opposite influence of mind was a case of mine in which a girl of ten had first one eye crossed before the age of two, and the transfer of the squint to the other eye during the next year, while wearing spectacles under the direction of an eye specialist. The years of treatment, and the attitude of her parents, constrained by fears of arousing an inferiority complex in the child's mind, had gradually developed an antagonistic feeling toward any further effort, and she was not in the least degree responsive. Any effort she made was either under protest, or without any confident and interested attention, and the part of her mind which could have cured the condition never entered into the endeavor. There was no success, and the undertaking was discontinued.

A similar case was a boy of ten, stupid and cantankerous, and blocked by a natural mental inertia. A considerable improvement was secured in his near-sighted and astigmatic vision. But he would relapse, and lose entirely some of the lines on the Snellen Card, which he had seen clearly a few days before. In response to enthusiastic encouragement in practice, he would show a deliberate indifference, or even resentment. He demonstrated, unconsciously, by his own personal feeling, the antagonistic part that the mind can play in a correction of the abnormal function.

A girl of eight, whose father and mother each had a squint in one eye, had an inward squint in her left eye since earliest childhood. They were patients of mine before I knew of the method of Dr. Bates. The girl's mother brought her to my office to see if any improvement could be accomplished in the position of her eye. The crossed eye could see as well as the normal eye when the normal eye was closed. After interesting the child in general conversation so that she was amused, and had no thought of her eye, I suggested a new game. She was to keep her eyes closed until I asked her to open them, and expect to see things I would tell her were in front of her. At first I suggested some grotesque objects, for instance, a tame hear on roller skates, a very red dog with a very black tail, and a chair that had a kettle of boiling water on it, with red steam corning out of the spout. We had some good laughs, and I kept warning her that if she opened her eyes, the game would be off. Soon I asked her to draw a line in front of her face, about six inches long, from left to right. When we had succeeded in that, I called for a line starting at the right end of the horizontal line and slanting downward toward the left, so that when it was finished it would be directly under the left end of the horizontal line. It did not take long to teach her to draw the two lines in the air promptly when asked. Then she was encouraged to tell us what the two lines made her think of. When she was asked to make believe that she was in school, she instantly replied that it was a seven. After some persistent assertions that if she would keep looking she would see something to the left of where she had drawn the seven, there finally came a joyful exclamation that she saw a six. By the same method, and making her point to the seven, and point to the six, and then point to the right of the seven, she was encouraged until she exclaimed triumphantly that she saw an eight. I kept reminding her that she must not open her eyes.

Leaving the figures, I told her there was something black in front of her eyes. She insisted there was not. But suddenly she said: "Yes, there it is—it is my dog." When I asked for something red, it was harder, but I promised her a twenty-five cent piece if she saw something red, and finally she replied gladly that it was there. This time it was a camp fire, and her dog was there, and some people. Her mother sat facing her, and I warned the girl I would ask her to, open her eyes in a moment, and directed her to look first at her mothers face. When she opened her eyes, the crossed eye was perfectly straight. Her mother looked at the straightened eye for almost a minute and the eye remained straight, in the laughing face of the child. But then the mother faltered, and looked at me with a smothered exclamation. Instantly the eye popped back to its old abnormal position.

There have been some skeptical comments on the possibility of the child actually seeing the figures, and the dog and the fire. Those critics have not realized that all sight is some thing which happens in the brain. They have not realized either, the flashing of fresh young minds, which are not yet hardened into the automatic habits of later life. They have not tried to imagine the mind of a young girl telling her doll

about the new baby, and carrying on a conversation which shows that her mind distinguishes between the live baby, and the make-believe doll, but still, somehow, makes the doll a thing which understands and responds, and makes of herself a little mother. That is why a wise man once said that a little child can teach us, if we try to read what is in the picture. The parents of that child had their last quarrel soon after that first lesson, and separated, and the mother took the girl away from Berkeley. I have told this story because it illustrates how the visual center controls the squint in an eye. The boy I reported, who still lives here, showed in a graphic way what an added mental tension can do to an eye that is squinting. This girl demonstrated how a condition of mental relaxation can relax the tension and correct the abnormal position of the eye.

Few have not experienced the rigid tension in the body muscles caused by some shock or some fear, and the soft relaxation which followed when the cause disappeared. Why refuse to admit that the eye muscles can likewise be stiffened by a mental tension, and likewise be relaxed when the mental tension is relieved—especially when there is abundant proof that it is frequently happening? Such a shock caused a psychic blindness in my own eyes, two hours after I felt myself drowning. It was an hour before my sight was clear again. But that fearful shock left such a tension in my visual center that for thirty-seven years one pair of glasses after another did not restore my sight so that I could do my work without the lenses: I have had better vision without them now for ten years—even after the prolonged subjection to an artificial control—because my mind learned the cause and the cure for the condition. In the text books the same disorder in the mechanism of vision is assigned for astigmatism as that assigned for strabismus.

Many can produce a strabismus in one eye, or both eyes, at will. I saw a man make his eyes roll in unison like a moving figure eight; and he could hold them wherever he wished. A famous German movie star, in Hollywood, acted realistic parts in some very tragic scenes. Several times in the performance, at a very tense moment, his eyes showed an extreme strabismus which disappeared instantly when he had finished that specific portrayal. Such well-established facts are the warrant for a technique in the Bates method that is to be used in the treatment of strabismus. In some cases, when a patient demonstrates that it is possible to make the eyes squint more, or squint differently, the realization is forced on the conscious mind that the abnormal condition is not unchangeable, and is even within the control of the mind. When such a new state of mind is secured, a fine beginning is already established. The new mental attitude not only develops a new hope, but soon finds new experiences with the eye through the co-operation of the visual center in the brain. Dr. Bates reported one case of a woman brought to him by an ophthalmologist, because her squint was so complicated that the other specialist was puzzled concerning treatment. She was taught to change the degree of the squinting eyes, and with that beginning the fault was soon corrected.

In the text book it is explained that all the different forms of strabismus are caused by some specific strain or strains, and that the strains all originate in the control center in the brain. This explanation warrants a claim that relaxation—which is a release from abnormal tension—removes the cause of the disorder in the function. If the squint is caused by poor vision in one or both eyes—which poor vision itself is caused by some abnormal tension—relaxation improves the poor vision, and the squint is relieved.

Another technique requires the patient to learn how to see two lights when looking at one. This is not hard to learn. It is sufficient to stare hard with the eyes, while looking at the light, and imagine there are two lights. It is easier to accomplish this when the light is a candle, as the flickering flame facilitates the illusion. If the sight of one eye is better, it will help if a blue glass is placed before it, so as to interfere with the vision of that eye. When such an illusion has been produced, the eyes should be gradually relaxed in the manner directed before, by alternate palming or swinging, and the mind will have been instructed by a helpful new experience. A variation of this technique is to imagine the two lights when the eyes are closed. This requires a closer attention, but is a proof, when accomplished, that the visual center is giving more co-operation.

With quite young children a most effective method is to swing them around so their whole body leaves the floor, holding them by the arms, and having them look into the face of the adult swinging them. The exhilaration produced has a most relaxing effect. Another excellent practice with children is to use a

number of small objects of different colors and sizes. They can be taught the names of the objects, and the names of the colors, as they see them nearby. The objects should then be gradually removed farther from their eyes, as they are able still to see them clearly. If care for all the details is observed, and a daily practice is continued, the mind will he interested, the vision improved, and the squint gradually corrected.

These specific suggestions are illustrations of practices especially adapted to the treatment of squint. Each case, naturally, has to be studied individually, and the practices selected which seem to suit the specific condition present, and the individual mind and temperament. In the several chapters devoted to detailed descriptions of techniques, there will be found practices suitable for every type of strabismus.

CHAPTER XXX

CATARACTS

CATARACT is the name given to an abnormal condition of the eye in which there is some opacity in the lens. This happens so frequently in later life that many are familiar with the story of the affliction. Very few however, have any knowledge of the many diverse manifestations of changes in the lens which produce different kinds and degrees of opacities, in young as well as in old. There are so many different types of cataracts that one ophthalmologist jokingly remarked that he thought there were fifty-seven varieties.

The opacity may be found in the capsule covering the lens, as well as in the lens itself. It may consist of a hard, dense tissue, or be of a softer and less opaque consistency. It is found in widely different shapes and sizes. The spots may be sharply defined, or diffused over a large area of the lens. A small, hard spot, in the middle of the lens impairs vision much less than does a soft and thin opacity which is spread through the width of the lens. Some spots on the margins of the lens are hardly discernible, and do not interfere with vision. The various types are subject to a difference in the nature of the changes which take place in the character of the tissues. Some are described as partial-stationary, because they are permanently limited to the same dimensions. Others are called progressive, because they spread progressively over a larger area of the lens.

Cataracts are spoken of as congenital when they are found at birth, or discovered later when they attract attention. Those are supposed to be due to some fault in the development during foetal (fetal) life. The form which is acquired generally appears in later life, but may appear at any age. A cataract may develop so quickly that the lens may be completely opaque in a few hours. It may develop so slowly that its progress continues during many years. The opacity may develop in most irregular stages—increasing for a time, remaining stationary for a variable period, and then increasing for another period only, or progressing continuously until the lens is completely occupied. That is one reason why, sometimes, it is not possible to estimate the probable outcome and the time the process will take. Cataracts may be hard or soft. They may fill the lens with an excess of fluid until it swells. This excess of fluid ultimately is lost. The lens is then spoken of as being "ripe". Often it is difficult to estimate when a cataract is going to become ripe.

In the text books many conditions are given as possible causes of the development of cataracts. General diseases is a term that is used, and diabetes is mentioned specifically, and toxic conditions, and epilepsy, and hysterical convulsions, poison and injuries.

The treatment described in text books includes the correction of any apparent abnormal condition when it is possible. It is explained, for instance, that when the system is relieved of the excess of sugar present in diabetes, there may be a relief from the cataract. Therefore disturbed chemistry, or the presence in the system of a poison, or some toxic condition, may cause a cataract. Also cataract may be caused by whatever abnormal conditions may be developed by hysterical convulsions. But in many cases where cataracts are present it is not possible to find any indications of the presence of any of these conditions.

There are many facts relating to cataracts which I have not been able to find in text books. A patient of mine who had been treated for developing cataracts during several years, by a well known ophthalmologist, came to me finally with the hope that the Sates method would relieve the condition. She had been taking medicine and visiting her eye specialist regularly until some months before she came to me. She stopped the medicine and all treatment because the cataracts were growing steadily, and she was afraid she would lose all her vision. The ophthalmologist had found no indications of any abnormal condition of the system; and as her family physician, during some years, I had never found any abnormal condition, except a mental tension which showed itself only in her conversation. Heart and blood pressure were always normal, and every examination and analysis indicated was carefully carried out to assure her there was no apparent underlying abnormal condition of organs or chemistry. Although she knew of my work with the Bates method, and discussed it with me and with the eye specialist, she never considered trying it until the increasingly serious difficulty with her vision made her determine to try it as a last resort. Her ophthalmologist had told her the cataracts were not in a condition to be operated upon.

During two weeks of almost constant practice of the various techniques of the Bates method, she secured such an improvement that her eyes were almost normal for near and far vision, and were satisfactory for continued reading, and every other use of daily life. This case was under my care for several years. Her vision continued to be satisfactory, and was better than average for small print and sewing. It was quite variable, however, because her nerve tension became more apparent. Her blood pressure was an average normal when I last took it, at eighty-two years of age, and her heart was in good condition, and there was no evidence of any other organic or functional disorder. Sometimes she came with complaint about some dimness of vision, or change in her power of vision from hour to hour; but even then she would demonstrate by reading fine print readily, and reading the ten-foot line on the Snellen Card at ten feet, that her vision was fine for a woman over eighty years old. She had no difficulty in seeing her way clearly in the midst of street traffic. Nevertheless there remained in her mind the memory of the very poor sight she once had, and these recollections would sometimes impress her mind so vividly that she would have spells of poor vision as a result.

Another case of my own, recorded in the chapter on children, illustrates just the opposite type of cataract, relieved by the same treatment. During an attack of poison oak, with both eyes closed by the swelling of the face, a boy of fifteen developed a cataract which filled his right eye, and was there when his eyes opened. The cataract must have been produced by the toxic condition. During four months of treatment by an ophthalmologist, no least improvement had been secured. Three weeks after I first treated him, three-quarters of the cataract had disappeared, and in a few months there remained no trace.

A different aspect of the subject is illustrated by the case of a woman over eighty, who had very poor vision due to cataracts in both eyes. She discarded her glasses at once, and for the remaining two years of her life she did not use them again, and she could read and write and had satisfactory vision for all purposes. The most significant thing about this case, was that there was very little difference in the appearance of the cataracts. It seemed that the change took place in her visual center. An improvement was apparent at once. Her eyes began almost immediately to respond differently to the same rays of light which before had not registered any conscious impression on her mind. This may seem strange to one who has never deliberated over the many explanations in standard text books on the eye, which point out that better impressions are made on the conscious mind, even with the same rays of light reflected from the same objects, when the visual center is aroused by the attention and desire of the will. This is true in every other field of the work of the mind, and we are all familiar with that fact. It is only because we are not accustomed to giving any attention to the ceaseless functioning of the marvelous mechanism of our eyes, that we are surprised when we are told that they, too, function poorly at times, because our mind is paying no attention to there, and they will respond with more power when we ask them to do so.

Dr. Bates reported a demonstration made by a professor of anatomy before a group of observers. When the professor held the eye of a dead cow loosely between his fingers, the observers could see that the pupil was perfectly clear. But whenever he compressed the eyeball so as to flatten it in the middle, the pupil became completely opaque, and it became clear again as soon as the pressure was released and

the eyeball resumed its natural round shape. The opacity was a cataract. Dr. Bates suggested that this experiment can be demonstrated by anyone who is interested. Dr. Bates claimed that patients have increased the density of a cataract by a voluntary effort to harden the eyeball. This was done through the compression of the external eye muscles by means of a tension produced deliberately.

Conversely Dr. Bates claimed, that by relieving an abnormal tension, through the practice of techniques which he described, patients have improved the condition of different forms of cataracts temporarily, and made the improvement permanent by continuing practicing. The various practices suitable for this relief from the tension causing cataracts are given in preceding chapters Palming, and Sunning, and Shifting the Central Fixation, et cetera.

CHAPTER XXXI

SOME OTHER CONDITIONS

IN THIS chapter I shall report some cases in my own practice which illustrate the value of the Bates method in abnormal conditions of the eye which are rare, as compared with the conditions of the eye that have been discussed in previous chapters. The causes of these conditions are often obscure. In the text books certain causative predisposing diseases are mentioned, but often none of those mentioned abnormal conditions of the body are present. The purpose of reporting the following cases is to show that the abnormal conditions of the eye discussed were relieved and normal sight recovered. In these several cases, the treatment was undertaken either after treatment by a specialist had proved to be of no value, or after a specialist of recognized standing had assured the patient that no cure could be promised.

Iritis is an affliction in which the iris is inflamed. This almost always causes severe pain; and generally the vision is badly impaired or entirely lost. Often it is a so-called recurrent condition, disappearing entirely and reappearing sooner or later. In other cases the condition is constant.

A colored man, mentioned in a previous chapter, who gave a record of having been treated during seventeen years of recurrent iritis, by several eye specialists that he named, came to my office one Saturday with a statement that he had been home three weeks with a new attack, was suffering great pain and could not see all his fingers even with his hand held very near that eye. A friend drove him from Oakland. During that first hour in the office he was enabled to see with that eye, at a distance of three feet, the top two lines on the Snellen Test Card. Later, I was told by the patient who persuaded him to come and talk with me, that he had made an appointment the day before, to have that eye removed on Monday. It was only because of the novel treatment, and the result which astonished him, that he decided to go on with further treatment. He returned to work in ten days. It was over a year from that time that I heard from him last, and he then wrote me that his eye was in a satisfactory condition.

That patient had been through every examination used to detect a focus of toxemia in the body, and had his tonsils removed and teeth inspected. He knew every sort of customary treatment as used by the several specialists who had cared for him. However, his eye had never been treated with an ultraviolet ray until I used that ray on it. It was plain that the ultraviolet ray helped his eye very much. I have seen its value in treating other abnormal conditions of the eye. I have used the Kromayer ultraviolet ray lamp on my own eyes many times to note its effects. I have never seen any ill effects although I have used the Kromayer light several inches from the eyes, for a period up to three minutes. But the principal factor in his cure was the grand help he received from his visual center, in response to the demand in his mind, and the confidence developed from that first morning, when the pain stopped, and the sight began to come back to his blind eye.

Another case of iritis, constant for one year, has also been mentioned before. When that patient came to me, she could not see at all. For a year, a well known specialist treated her eyes. He promised he would help one eye, but said the other was "out of luck". The patient discontinued his treatments because her eyes were steadily growing worse. She then tried for three months to get some help from Christian Science teachings, but without any relief. By exposure to ultraviolet rays, and prolonged

exposures to sunlight, and other practices, her eyes became normal. A significant feature of this case was that her eyes faltered again some months after, because of continued nerve tension, and failure to observe the rules she had been given. She secured relief when she followed the same treatment that had cured the condition before. During the two years following, her sight was normal. I have never heard that it did not continue to remain so. The cause for that iritis was not found by the eye specialist, during a year of treatment. The patient was under a constant mental strain, caused by economic conditions, and the dark outlook for a family of growing children. The same outlook continued at the time of the second attack. No medicine was used. She was cured twice with treatment by the practices of the method of Dr. Bates. The ultraviolet ray is an intensive sunlight treatment, approved by Dr. Bates when I wrote him that I was using it.

A case of detached retinas, consequent upon forty years of nearsightedness, has been mentioned before. That man was enabled to discard his two pairs of glasses by treatment according to the method directed by Dr. Sates, with the addition of the ultraviolet ray. The ultraviolet treatment helped him most, according to his own close observation.

The case of the young woman with hemianopsia, also reported in a previous chapter, was remarkable. Such cases are described in the textbooks. Sometimes a small spot on the retina is blind—no perception is registered in the visual center from the rays received on that spot. Such spots are called scotomata. This young woman had a large blind area on her left eye. In looking at the Snellen Test Card she could see only the last letter on each line with that eye. Among the conditions mentioned in text books as possible causes for failures of this nature on the part of the mechanism of vision, one finds neurasthenia (a nerve fatigue condition) and hysteria. Hysteria is not a condition called hysterics, which is often seen. Hysteria demonstrates many various forms of abnormal functions, of different parts of the body, and always involves some abnormal condition of the control center of the brain. Since some of that type of cases are classed in the text books as being caused by different kinds of nerve dysfunctions, why is it not reasonable to expect a suitable treatment of the nervous system to correct the dysfunction? In every other branch of medicine similar conditions are being cured in that way. The hemianopsia of that young woman was cured in that way in one hour. In previous chapters, I have mentioned two cases of amblyopia (vision poor up to the point of blindness), and my own case of amaurosis (blindness when no physical or chemical change is apparent). The cases of amblyopia in adults each involved practical blindness in one eye from birth. One patient was twenty-two, and the other thirty-five years of age. Both eyes, practically blind, were able in a few days to see distinctly such objects as fingers, large letters, et cetera. The older patient had been offered no hope or treatment by the eye specialists consulted. The younger one was told to keep the good eye closed whenever possible, and make the nearly blind eye gradually learn to function. He was told that it would be two or three years before he would find any improvement, but he secured a fine improvement in a few days. My own experience, occurring when I was twenty, developed in an instant, began to lessen in half an hour, and had entirely disappeared in one hour. I was in normal health, had no other sensations, and was not conscious of any reason for its occurrence.

In standard text books, where the discussion treats of disturbances of vision when no changes in tissues are found, many real or supposed causes are specified. The type mentioned last on the list may be psychic blindness. But when one searches the large text books, with reams of pages recording the most minute findings about every other aspect of this tremendous subject of vision, one will find almost nothing about this psychic element of a function which in the same book is spoken of as ultimately a psychic function. Suppositions are offered to account for psychic blindness. But no explanation is found for that failure in vision when the supposed causes certainly are not present. For instance, it is stated that if a psychic blindness is caused by some destruction of an area in the visual center, objects are seen but are not recognized. But in cases where the psychic blindness suddenly changes into normal sight after it has been present for many years, that specific supposition is invalid. When no other explanation is offered for psychic blindness, one is left to wonder what causes it when it comes suddenly and disappears as quickly. To say simply that it is a phenomenon of hysteria is not a fair explanation, when many facts are in full view that are offered no consideration—or at least no comment.

It is not the intention of this chapter to wander into the field of psychology. What is written here is not an effort at some kind of erudite criticism. But the mechanism is under consideration in this book, and

some plain facts are offered, in the form of a question. The underlying principle or factor in the type of faltering vision called psychic blindness, is the foundation of the method of Dr. Bates. When the answer is written to the question: "What then is psychic blindness?", it will be realized that the same answer will explain the cause which underlies those simpler failures in visual function that are troubling such a large part of the population which spends its daily life in a mental atmosphere full of unnatural, and unnecessary, and disturbing tensions.

The answer given by Dr. Bates was that the eye which is perfectly relaxed sees perfectly; and in order to relax the eye it is necessary to relax the mind. It is all very simple. Omar Khayyam found it, in the midst of his mathematics and astronomy and the intrigues of an Eastern Court. Abraham Lincoln had it. President Roosevelt has it—ever: though sometimes he does put on glasses. The simple, practical importance of it, to those who are having trouble with their vision, or whose children are ordered to put on spectacles for life, is that the necessary mental relaxation—simply normal, deliberate, effective functioning of the visual center, is within the easy and certain reach of all who are interested. It is a false answer to say that artificial lenses cure the abnormal mechanism of vision, when those artificial lenses must be changed again and again for stronger ones, because, as the wearers are told, their eyes are getting weaker and weaker.

CHAPTER XXXII

CONCLUSIONS

IN THIS closing chapter, I hope to make plain the meaning of what has been written. It is only a hope, but growing in the years, it has become a faith. There is a significance in that meaning, which has reference to the future of this country. The needless subjection of the eyes of the coming generations to the domination of glass lenses must have an absolute and malevolent influence on the mentality of any weak-eyed nation.

It has been written, again and again, that the race is losing its virility. Losing it through the artificial and unnatural environment which has developed in this modern civilization. We are told that because we live in air conditioned offices, and steam heated apartments that are not homes, but only places to sleep, and spend our days in purposeless, feverish excitement, we have lost the faculty of adaptation which raised the race as it evolved, and without which it is sinking back from the place it had attained. We are told that we are mechanicists mentally as well as physically.

In the United States the habit of wearing artificial lenses is increasing at such an astonishing rate, that it is fast becoming a remarkable national trait. A young woman from Australia, who came to me because she had heard of the Bates method there, told me that for the last three or four days on the ship, she was impatient, above every other thought, to get on the street in San Francisco, to see if it was really true that almost everyone wore spectacles. She said she had tried to imagine how the people would look, and that in spite of her preparation, she never-the-less was astonished when she saw the procession of glasses. The shock made her more than ever determined to have the beginning trouble with her own eyes corrected, so she would not be compelled to wear spectacles for the remainder of her life. Such a feeling would have been quite common when I was her age in New York City, in the early eighties. But the environment in our large cities has silenced such a feeling with millions of the people of the United States.

The new psychology has served to obscure whatever consciousness there might have been of the meaning of such a condition, if the change had come over the inhabitants in a few months. The difference, in a moment as it were, would have startled the public mind into an apprehension which would have aroused questions, and questions are dangerous, if you like, but always the incentive to action. There is beginning to be heard, from different quarters, comments on this subject which sound very much like actual questions.

Suppose we try to imagine the questions, and the answers, if it should happen that an epidemic came upon this nation of a similar condition in the legs of the population. Suppose that millions were finding their legs beginning to falter, so that they could not be relied upon—without damage, and without pain or apparent cause. Suppose they sought help, and were told that the cause was only a strain, and the cause of the strain was not apparent, and no cure was possible, and they must all wear braces. Would such a situation be accepted with what a famous Englishman called the docility of the American Public?

Suppose, further, that a famous orthopedist published a book which explained that a strain is an unnatural tension, in the leg muscles, the same as in any other body function, and curable in the same way. Can it be imagined that the public would say: "Never mind, we prefer to put on artificial braces; and besides we think it is a most attractive fashion." There is a difference, certainly, in the two situations, but the analogy is perfect. It is only that it may seem different. A little deliberate thought will demonstrate that the factors involved are the same. It sounds frightful to think of a nation with helpless lame legs. But what of a nation with helpless eyes? Suppose that all the spectacles in the United States were lost over-night? It is no answer to say that it will not happen. Because it will never happen is not a reason for refusing to question why a nation with just the same eyes as other nations, should be putting on spectacles so fast that it seems to be responding to an ambition which has been expressed, that all should be wearing them. Suppose we remember that a book has been in print for sixteen years, following a public knowledge for another sixteen years. Is it then a question as to why the public has decided against the cure for the eye—or is it a question as to why the public does not know the established facts?

From certain sources there is positive and persistent opposition to the spread of this knowledge. It is combated and suppressed. There are living examples of the vital power of this truth in several different countries. The book of Dr. Bates has been in this country and in England and Australia since 1920. There are schools teaching the system in Germany and in England.

Truths that are new generally must keep themselves alive, until time wears a way into the consciousness of a public which thinks that an original man is a fool or a prodigy—and is likely to dismiss him as not a prodigy. When there is added to this inertia, a positive, active, and persistent influence of tremendous interests, any new conception meets an atmosphere in which it is hard to live and develop power. It was into such an environment that the discovery of Dr. Bates was born.

It has lived. Truth always, lives. This truth belongs to the race. It cannot be permanently stifled or suppressed. The people of this country have the right to know the truth. It is still their privilege to make their own decisions. Some day, some way, it will become known, as other great truths have become known. When the people of the United States realize that they can have, and their children can have, the same fine natural eyesight that the mass of the race is enjoying today—who would say that they will not decide to use their own eyes, instead of being slaves, helpless without their pieces of glass?

Dr. Bates published scientific reports of his discoveries in conventional medical journals. Discussed them in medical societies. At one annual convention of the American Medical Association, so he has written, he was one of those allowed five minutes to comment on a paper read. The reader of the paper accused Dr. Bates of being a quack—because of the claims he had published and was supporting. The same man had removed him from the staff of a post-graduate medical school in New York City, because Dr. Bates had enabled medical men in the school to discard their glasses, after that specialist had fitted them. His complaint was that nearsightedness could not be cured. Dr. Bates had answered that he could examine the eyes of the doctors under discussion as to their nearsightedness. The complaining specialist's only reply was, that if they were not nearsighted at that time, he had made a mistake when he examined them. So many whom I have met have discarded their own glasses, after wearing them for years, because they found they were not nearsighted any longer—I speak of those who never heard of Dr. Bates. The five-minute talk of Dr. Bates interested those specialists of the American Medical Association so much that they insisted upon his talking to them for an hour. The paper of the doctor who had called him a quack took only fifteen minutes.

During more than thirty years of private practice and clinical work, Dr. Bates cured those afflicted with various dysfunctions of vision, removing their glasses permanently, and teaching them how to have normal vision. Many physicians have been interested in the work of Dr. Bates. Patients who were cured are in evidence and the work of Dr. Bates is known all over the world. Although he demonstrated his experiments in the presence of specialists, and his proofs were accepted, no public acknowledgment of his discovery has ever been made. I have often been asked why this is the case. Certainly it is not my part to offer any explanation.

Three years after the death of Dr. Bates, a personal friend, who was a trained newspaper man, persuaded me to submit an article on the subject of this book, to a popular weekly. The reply was a courteous refusal, on the ground that it was "too far from their trail." Later, I submitted the same article to a classical monthly magazine, which publishes both sides of interesting controversial subjects. It was again met with a courteous refusal.

Last spring, a widely read magazine announced a prize competition for unpublished articles of human interest. The intention was to secure articles from those who, thanks to unusual experience or observation or reflection, might well contribute magazine articles having a high standard of lasting interest and significance. Except that it must be the first contributed article from the writer, there were to be no restrictions. A special knowledge of some phase of American life that can be given general importance and appeal; an illuminating human experience; the desire to recognize a fine accomplishment—these were the qualities the judges were to consider in making their decisions. There was to be no fiction. They must be accurate in fact and genuine in feeling. They must be the product of unusual thought or unusual knowledge. They must deal with a subject either not treated before, or presented in a fresh light. They must have a significance and interest as broad as possible. They must combine these qualities in such a way as to produce an article whose value would survive long after the month in which it was printed.

The conditions seemed to me to fit so perfectly the subject discussed in this book, that I submitted an article entitled "The Marvelous Work of Dr. Bates." The article was returned, so I was informed, with especial regret. I was told that my article was one of those which received most serious consideration. In the final selection it was left off the list because, in the opinion of the judges, it either dealt with material covered fairly recently by the magazine, or to which the magazine was already committed; or because in competition with other articles on the same subject, another had slightly the better of it; or because either the subject, or the treatment of it, did not seem quite within the scope of the magazine.

That my article was rejected is of no moment. If some other writer covered the subject in a better manner, that writer will receive my most sincere congratulations, and my gratitude. If the accuracy of my facts was questioned, it would have been a simple matter to verify or disprove them. If, otherwise, all the ten articles selected were considered to be of greater lasting interest and significance, and to have more general importance and appeal for the American public, I believe that most of the readers of this book will share with me an intense curiosity to read every one of the articles when they appear. Until that time, I can only wonder "why".

We all remember that exquisite little poem of Dr. Oliver Wendell Holmes, "The Last Leaf." It was the quaint philosophy of a grand intellect put into a parable. The picture of the old man, with the thin nose, that rested on his chin, and the crook in his back, who had not been welcomed by the new life in which he wandered around as a stranger, impressed that lover of the race, and he put the innermost thoughts of his own heart into those lines that will never grow old.

With his keen insight, The Autocrat of the Breakfast Table sensed the melancholy crack in the laugh of the man in the old three-cornered hat; he pictured him when not a better man was found by the crier on his round through the town. Now the Old Timer, who had outlasted all the other leaves upon the tree, was still hanging, an old leaf in a new spring, among fresh flowers. He was in a new world of different things; and now he walks the streets, and he looks at all he meets sad and wan.

Is it a strange fantasy for me to think of the human eye, today, as Oliver Wendell Holmes thought of the neglected man of a by-gone generation, who made the pavement stones resound as he tottered o'er

the ground with his cane? The eye itself, is the last leaf upon the tree. It is a stranger in a new generation. Every other part of the body is living in a different world. Every other part is cared for when it is sick. The life, and mechanism, and needs and nurture of every other part of the body have been searched and studied, and are being helped and renewed with a science and an art born of new interest and new hope. But the eye has been deserted to its fate. There are volumes—of literature reporting newly discovered knowledge about almost every other organ of the body; and there are campaigns to protect, and to refresh, and to prolong the life of every other organ and function. But when the function of the eye falters, there is no help offered. Like the old man, it is given a cane. Even when it is quite young, still the faltering eye is given a cane for life. In early life even a little sympathetic interest and care would be sufficient to save it, with all its power; and it could even develop a finer power out of the new knowledge of its functions, as the other organs are being improved in their power by the same modern methods as Dr. Bates used in the treatment of the eye.

If this book succeeds only in arousing the attention of those who are interested in the welfare of children, I will feel that it has fulfilled a purpose sufficient for the effort. They are being wronged when their eyes are made the slaves of glass lenses for life. Sight is a psychic function. Who can say what it means to children when the natural freedom of their eyes is dominated by spectacles in those early formative years?

The subject of this book is not an abstract exposition. It is not an academic discussion of public policies or class interests. It is not offering a theory. The issue is simple and clear, and of the most vital interest. It has been established, during a period of over twenty-five years, that most of those who are wearing spectacles can use their natural eyesight, without any artificial assistance, and with perfect satisfaction. There is a question that concerns a great part of humanity at the moment, and which we hope will not harass us in this country—the question of what price glory? This book is concerned with the price the American people are paying for discarding the natural use of their eyes, so they may have the privilege of wearing spectacles. This book is an effort to interest them sufficiently, if possible, to arouse an inquiry that will disclose and consider the danger which is already a disaster, and threatens to become a catastrophe.

Simply to deny that an eye which is finding some difficulty in seeing, cannot be given any curative assistance—to reply merely that "Bates has been discredited"—is not an answer worthy the medical profession. Digitalis is the best life-saving drug in heart disease. It was found by a young physician, in the days before there were schools of medicine. He thought enough of some folk stories to search out and discover the valuable ingredient in an herb mixture used by an old hag who could help faltering hearts, but refused to tell what she put in her concoctions. Because a strange, obscure gleam was noticed by a research worker in a laboratory, and was not "discredited", the medical profession today has the marvelous advantages of the X-Ray. Quinine was found among the ignorant savages of the Andes Mountains. Because it cured their fever, the medical profession investigated and used it. The vaccination, which prevents the contagion of smallpox, was brought to the attention of Jenner, by the stories of what some ignorant farmers of southern England were doing to render themselves immune. He heard that they cut their skin and inserted some of the discharge from an infection on the udder of a cow, and it was called cowpox. Jenner sent one of his young assistants to investigate. Then he went himself, and when he returned he vaccinated his own family. He did not dismiss such a vital matter without investigation. Pasteur could not be silenced by the stupid incredulity of medical men who would not believe their ears; and out of his discoveries has developed the modern system of protecting the race from infection. It was thirty years before the medical world was finally persuaded by the proofs that Dr. Wagner-Jauregg continually gave them, although during all those years he was curing mental diseases, and other serious conditions, by producing a high fever in the bodies of his patients. The doctors had always believed that fever was a disaster for the body, and the claim of Dr. Wagner-Jauregg had to break down another entrenched conviction.

In the current number of a popular magazine, which is small in size, but large in circulation, and broadminded in conception, there is a report of the story of Dr Charles Henry Duncan, a practicing physician in New York City, who has given the medical profession a new method of curing infectious diseases. The method is called autotherapy, and in curing patients in that way, Dr. Duncan utilizes the inherent resources of the system to protect the body by its own natural method. His treatment is

described in standard medical dictionaries. His work has been fully investigated and approved by medical societies, and endorsed over the signatures of many prominent men in the medical profession. He has been recommended by men of standing for a Nobel Prize. Nevertheless, the majority of the medical profession in the United States have never heard of Dr. Duncan or his discovery. Of those who have heard of his work, some have been interested enough to investigate his findings, and have practiced them with success. Other medical then, incredulous, have condemned his theory. The experience of Dr. Duncan, like that of so many other men in the field of medicine, has been similar to that of Dr. Bates. He has met with the same old incredulity, skepticism, controversies, and opposition.

In the press this morning I find an account of a Dr. G. W. Day. of Texas, reporting in The Texas State Journal of Medicine his own successful treatment of several mental diseases, by the simple procedure of producing long continuous sleep—the longest lasting for seventy-eight days, and the average about twenty days. Such treatment may seem to be revolutionary. But such a conception certainly is original and magnificent. But in the final analysis it is a higher degree of ("relaxation", prolonged, and prolonged further and further, until the terrific mental tension has finally been relieved. For a long time, continued treatment with music, and other methods of suggestion, have been used with gratifying results, in the care and cure of diseases of the mind.

The analogy of the experiences recorded above, to the different aspects of the discovery and the work and the experience of Dr. Bates, seems very plain to me. He was met with incredulity, and the resistance which meets any new conception that conflicts with a fixed conviction in the minds of men. There is a similarity between the story of Dr. Bates and the stories above, in the portrayal of the manner in which truth forces itself upon the attention of those who happen to have a mind that is open to its evidence. They all comprise a record of one blessing after another becoming the possession of the race.

An editorial in an official medical journal, commenting upon the eightieth birthday of a leader in the field of psychology, compiles the different aspects of the experience his discoveries met with when he offered them to the medical profession. That editorial states that. The inevitable phases of reaction and consternation always provoked by new discoveries have not yet been passed. The concept of the unconscious has deeply modified the subjective attitude of human beings toward life. Human beings seem instinctively to resent the acknowledgment forced on them by Freud, that even their own personalities are removed from the sovereign influence of their conscious selves, and that they are not even complete masters of their own actions. The discovery of the unconscious has led to a striving to bring the unconscious under the domination of consciousness. The editorial explains that Freud discovered the unconscious mind as an entirely new territory of research.

Referring to Charcot, the greatest authority in neurology of his own time, the editorial points out that he was an empiricist and a clinician in the beat sense (meaning that his conclusions were founded on the symptoms apparent in patients). It states that: His great reverence for facts enabled him to emancipate himself from the current theories and dogmas in medicine, and to recognize the psychologic element in hysterical phenomena. In commenting on the life work of Freud, the editorial points out that the thirty-year period of his isolated work is not remarkable. It reminds the medical profession that the fight for the scientific study of the human body by dissection lasted for centuries, and the unbiased objective study of the human personality must prevail even over greater emotional obstacles.

In his remark that the inevitable phases of reaction and consternation always provoked by new discoveries have not yet been passed, that editor pictured the situation regarding the discovery of Dr. Bates, and the reasons why his wonderful gift to mankind is not yet being used to meet the necessities of the multitude asking for help for its eyes, and being offered, instead, only the crutch of a pair of spectacles. That erudite editorial pictures frankly the causes which prevented the benefits of the work of Dr. Freud from being used by physicians for thirty years. The same reasons are preventing the benefits of thirty years. The unconscious mind, the editorial explains, is still an unexplored region. Like the biologist who recently wrote that the medical profession has not yet begun to study the human mind, the writer tells the same men that they have not yet realized how dependent they are themselves, as well as their patients, upon the mechanism that is taking care of them—the mechanism called the

unconscious mind. The doctor, who knows that sight is a psychic function, and that we see in our brain, makes no effort to influence the visual center, which controls the mechanism of vision.

The findings of Harvey and Lister and Pasteur and Charcot and Freud, were challenged; but they were investigated, and now they belong to humanity. The finding of Dr. Bates are as important as any other discovery, but they have never been investigated, nor weighed, nor tested. They are simply ignored. And will this always be so? I am neither a prophet nor the son of a prophet, but I am not afraid to hazard a challenge that in due time the discovery of Dr. Bates will, likewise, come into its own. The others all had to wait until their time came. It is not yet the thirty years that Freud had to wait, and Wagner-Jauregg. The decision as to the value of the method of Dr. Bates will come from the men whose life work is the same as that of Dr. Bates. Instead of delivering the troubled eyes over to the men who grind the glass lenses, the physicians of tomorrow will treat them as the physicians of today have already learned to treat and correct the disorders of the other functions of the body.

"In Flanders Field the poppies blow, Between the crosses, row on row, That mark our place; Take up our quarrel with the foe. To you from failing hands we throw the torch; Be yours to hold it high."

As surely as any soldier ever died on the field, Dr. Bates gave his life for a cause, battling against fate, during many years of magnificent struggle, when the unending disappointment finally broke in hopeless despair. His torch is still burning. There will come some other battler, who is fit, and will hold it high until the people who are sitting in darkness have seen its great light.

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Needs one more spell check.