

The importance of general therapeutics in the treatment of ocular diseases : an address delivered in the Section on Ophthalmology of the American Medical Association, at the fifty-fifth annual session, June, 1904 / by A. Maitland Ramsay, M.D.

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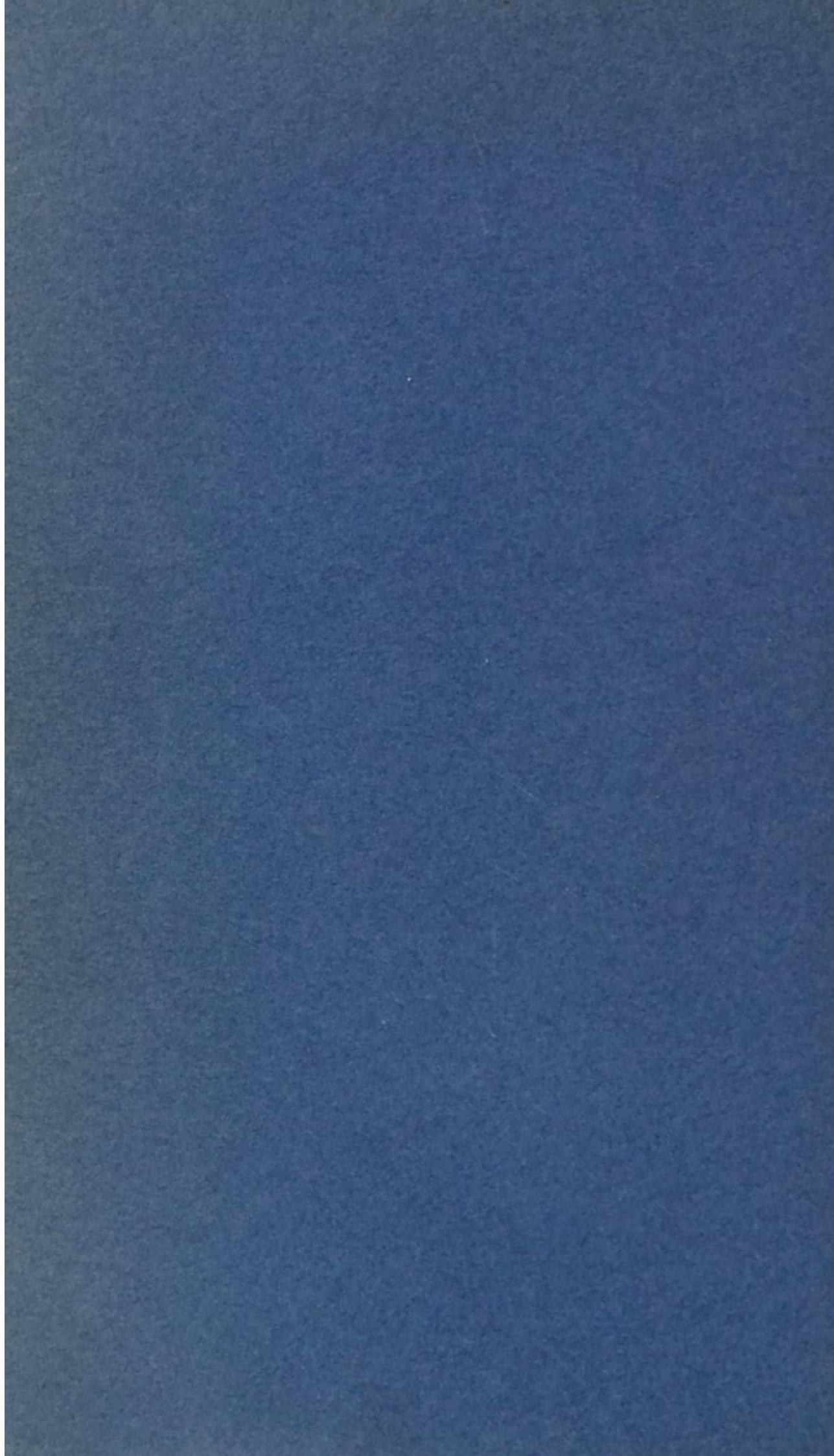
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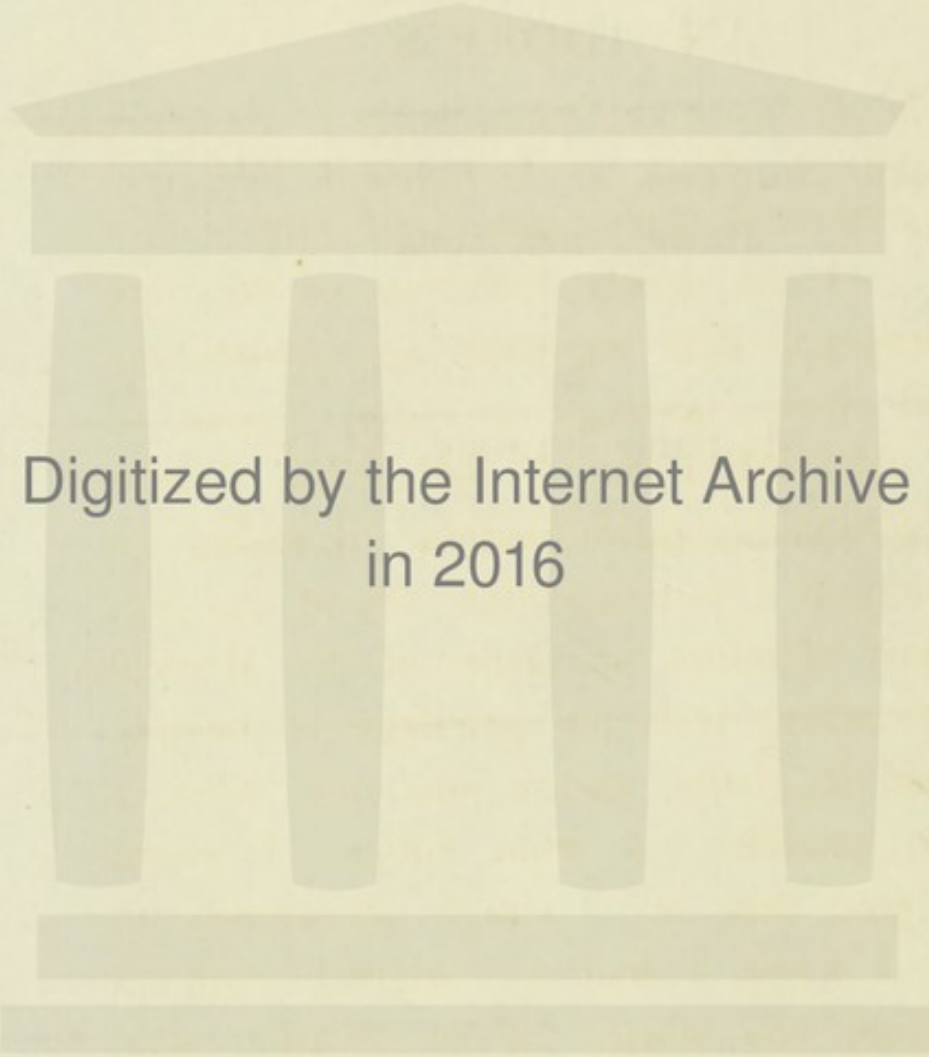
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MR. CHAIRMAN, LADIES, AND GENTLEMEN,

I am deeply conscious of the high compliment you paid me when you invited me to attend these meetings as your "guest of honour," and asked me to deliver an address to the Ophthalmological Section. Looking on your invitation as a recognition, not of any personal merit of mine, but rather of the Medical School to which it is my privilege to belong, I accepted it gladly, and it was only when I began to consider on what subject I might address you that my courage threatened to fail; for I knew I had no original work to bring before you worthy of an occasion such as this. As, however, my leanings have always been to the pathological and clinical rather than to the mathematical side of ophthalmology,

and as it was only after experience of general practice that circumstances led me to specialise, I determined, trusting to your indulgence, to offer you a few thoughts on the importance of general therapeutics in the practice of ophthalmic medicine and surgery.

It is not my purpose to discuss the action of individual remedies, nor the value of different methods of treatment: I wish rather to sketch in broad outline what is in my mind, and to leave each of you to fill in the details of the picture from your own experience. It is to the principles which guide, more than to the means to be employed, that I desire to direct attention; for although the treatment of disease is to a very large extent empirical, the discoveries made in physical, as well as in physiological and chemical, laboratories are slowly but surely placing the subject on a more scientific basis, and showing in many instances that, so far from empiricism being opposed to rational therapeutics, the two have many points of contact, and are, indeed, interdependent.

For most men it is easier to put trust in authority than to exercise independent judgment, and so instead of thinking for themselves

they accept a clearly expressed opinion as a scientific fact, or even mistake a mere impression for a real opinion. Many of the therapeutic measures so much in vogue at present—radium, X-rays, currents of high potential, etc., etc.—are purely empirical, and the routine employment of these forces, of whose real properties we at present know so little, seems rather to be a reversion to the old idea of the supernatural origin of disease than to be founded on a due recognition of its natural causes. Doubtless these means are full of promise, and the investigation of the ray world that extends on either side of the narrow limits of the visible spectrum may reveal mysteries of which at the present moment we can form merely a very faint idea; but at this stage of the study it can only bring discredit on ourselves and on our methods to make such an assertion as that, under the influence of ultra-violet or any other rays, "cancers are cured."

While it must never be forgotten that treatment is an art, and is none the less valuable because it is empirical, yet the whole trend of modern progress is to appeal less and less to

authority. We endeavour in all things to go to Nature direct, and by patient research to find out her secrets. Investigation of this kind demands much time and labour, and the life of man is short, and his mental and physical capacity for work limited. If any real advance is to be made, the extent of the subject and the briefness of existence make subdivision of labour necessary, and specialism is thus the natural outcome of increase of knowledge. It is an inevitable result of evolution and, as an ideal, ought to be symbolic of the highest form of efficiency.

This tendency to specialise is observable in every branch of inquiry—in philosophy, in politics, in engineering, in music, and in literature, as well as in medicine—and the organs of special sense have always been looked on as furnishing legitimate subjects for special study. Among these, ocular investigation has ever held a foremost place. The tissues of the eye are so delicate, its structure so complicated, and its diseases so numerous and so frequently followed by disastrous results, that there is little wonder that oculists have existed from time immemorial. In the early days, how-

ever, these men had no claim whatever to be called specialists. They possessed, doubtless, a certain amount of special manual dexterity, but the majority of them were charlatans of the very worst description, practising on the eye exclusively because they were wholly ignorant of the general principles of medicine and surgery. A specialist in the true sense of the word is one who has conscientiously studied the body as a whole, and the highest and best type is he whose early training has fitted him to take broad and comprehensive views of pathology. For all efficient higher training there must be a proper foundation, and consequently the specialist in medicine must combine in himself the diagnostic skill of the physician and the dexterity of the surgeon, and must add to these the special knowledge that gives him power and action reaching still farther along his own particular line.

Few, very few, can reach such an ideal, but all can honestly and strenuously strive to attain it. As a result of the subdivision of labour our knowledge in every department of medicine has increased so enormously that the study and

practice of any one branch is more than sufficient to occupy the time and tax to the utmost the energies of the ordinary man. We cannot, like the great masters in the past, cultivate a specialty and at the same time engage in general practice. The field is too wide. Nevertheless, if specialism is to render the highest service to the world, it must of necessity be based on an efficient system of general instruction; and consequently it is incumbent upon every specialist to strive, by reading, by frequent visits to the wards of a general hospital, and by conversation with colleagues, to keep in touch with the progress of pathology along at least its most important lines of advance. One of the besetting sins of the present age, however, is hurry, and if a man specialises too early he is apt to specialise more than he ought, and to cultivate his own department to the neglect of all others. An exclusive interest of this kind leads to narrow and distorted views whereby the part is magnified out of all true proportion to the whole, and, the sense of proper perspective being lost, judgment is biassed and opinion becomes untrustworthy. Doubtless concentration of thought along a

single line will tend to improve the power of special diagnosis, but it interferes in many cases with the ability to take a comprehensive view of the whole morbid process. It follows, therefore, that although the specialist may devise new means of local treatment, or improve methods of operative technique, there is a risk of his doing so without regard to the broad principles which underlie all rational therapeutics. It must not, however, be supposed for a moment that I would under-estimate the value of local treatment; to do so would be to run counter to all the knowledge of the process of inflammation which we have gained through the study of bacteriology. What I desire to emphasise is the need for assigning to local treatment no more than its proper value. It is just possible that the great amount of consideration given in recent years to the study of micro-organisms has tended to divert attention unduly from the soil on which the bacteria grow.

For example, if an ulcer form on the cornea of a healthy man the probabilities are that it can easily be cured by local treatment, whereas if the ulcer occur in an unhealthy person micro-organisms are not confined to the seat of injury,

but are found along with their toxins both in the tissues and in the blood ; consequently, if a speedy recovery is to be brought about, there must be general as well as local treatment. In the one case it might be said that the cornea was injured, but in the other that the patient was diseased, and that the ulcer of the cornea is only a symptom of his unhealthy state. Success or failure will depend on a proper distinction between these two conditions.

The researches of Pasteur and their practical application by Lister and his followers, by making successful operative interference possible in so many cases from which the surgeon had hitherto been debarred, gave a great stimulus to surgery as a whole, and with it to the surgery of the eye. In spite, however, of all our precautions, and of our most careful attention to antiseptic methods, eyes are still occasionally lost by suppuration after operative interference. As in the days prior to the introduction of antiseptic treatment, the failures are in cases where there has been previous inflammation of the conjunctiva or tear passages, or in which the patient's vitality is low. General mal-nutrition is as great an obstacle to success

as ever it was; and the necessity for action along this line suggested by clinical observation is borne out by the results of theoretical and experimental research so ably dealt with in Professor Welch's Huxley Lecture of 1903.

"The struggle," says Dr. Welch, "between the bacteria and the body cells in infection, may be conceived as an immunising contest, in which each participant is stimulated by its opponent to the production of cytotoxins hostile to the other, and thereby endeavours to make itself immune against its antagonist." When the body is healthy it possesses the power of producing substances specifically antagonistic to all sorts of micro-organisms, but with this power any morbid state at once interferes; and as in all infections, whether local or general, "abnormal metabolism is an essential condition," patients of low vitality will be in such a state that the substances produced, so far from being antagonistic to parasitic organisms, may actually stimulate their growth.

This being so, one must not only endeavour to render the field of operation sterile, but must also devote the utmost care and attention to what is of equal importance—the giving the

patient himself increased power of resistance. Good food, fresh air, rest, every means of strengthening digestion, are all essential. Should the sufferer be a poor man, who has been unfit for work for several months, and through poverty unable to procure a sufficient amount of food, he will require special care, since his tissues will be in the condition most favourable for the action of even the slightest infective taint, and also for the rapid spread of suppuration. While, therefore, every attention should be paid to strict antiseptic precautions at the time of the operation, equal care should be bestowed on the state of the patient himself, especially if he be poor and habitually ill-nourished. Were the health of these broken-down subjects better looked after prior to cataract and other operations, there would be fewer failures from suppuration.

The comparative safety of modern surgical procedure has brought with it certain disadvantages. The immediate and often brilliant results following operations offer a strong temptation to run a certain amount of risk in cases where the slower but perhaps surer methods of general therapeutics are to be preferred. For example,

in dealing with patients showing symptoms resulting from heterophoria, very frequently tenotomy is performed, or a rectus muscle is advanced, whereas no such procedure should be undertaken until every opportunity has been given for the recovery of the balance of muscular power by promoting an improved condition of general health. The ease and safety with which an operation can be performed tempt one to employ it as a first remedy, when it should rightly be used only as a last resort.

From what has been said, it will be seen that the great advances in ophthalmic surgery have gone on *pari passu* with those of general surgery, and that both are the direct result of the labours of those who have worked out the practical applications of the science of bacteriology. So also is it true that similar advances in the treatment of diseases of the eye can be attained only by a careful study of the principles of general pathology. There can be no special study of morbid conditions in the eye, apart from special post-mortem appearances incident to peculiarities of anatomical structure. Nor could we expect it to be otherwise when we remember how quickly sight is

affected in all disordered states of the body, and how frequently morbid changes take place in the ocular tissues as consequences of general ailments—as Paget said long ago : “No disease can be properly understood unless it be considered in its whole pathology.” Happily, modern pathology is much more than a record of post-mortem appearances. It deals not only with structure, but also with function, and thereby takes cognisance of the origin and course, as well as of the results, of a morbid process. Its whole trend is to demonstrate, what has all along been known to the clinical observer, that a disease can cure itself. This all-sufficient power of Nature to bring a patient back from sickness to health is the very first lesson in rational therapeutics. It is recorded of Sydenham that when he was in doubt he consulted his own reputation and the patient’s safety by doing nothing at all. Doubtless this expectant treatment can be carried too far ; but probably most of you will agree that many eyes are lost from injudicious meddling which might have been saved had they been left to Nature. The wonderful powers possessed by the natural restorative agencies of the living body were,

and are still, spoken of as the "Constitution," or the "*Vis medicatrix naturæ*"; but these words, although they encouraged a physician to hold his hand, and in consequence oftentimes saved a patient from the discomforts, and even the dangers, of what has been called active treatment, are nevertheless simply cloaks for ignorance. The new nomenclature, which is arising in connection with the study of infection and immunity is, however, promising to provide us with a means of expressing ourselves intelligibly regarding the manner in which Nature works. The Chain theory of Ehrlich has provided a working hypothesis for the investigation of the phenomena associated with the great problem of life and death. Just as the strength of a chain is measured by its weakest link, so must the resisting power of the body be estimated by the vitality of its constituent cells. An organ may, to every form of physical examination, appear quite sound, and yet may break down quickly and completely under the strain of any infectious disease. There is inherent corpuscular weakness, and consequently the ultimate appeal must always be to the individual corpuscle. If this be granted, there is no

difficulty in explaining the short-sightedness that sometimes occurs as a sequela of measles or scarlet-fever, or the destructive choroiditis associated with progressive myopia that is occasionally met with in the children of agricultural labourers, whose open-air life ought, in the absence of inherent weakness of the tissues, to have effectually prevented the onset of such a condition.

In this theory, then, the organic life of the individual is simply the aggregate of the corpuscular life, and the more intimate our knowledge of the changes taking place in the cells of the body, the more surely shall we, in the cure of diseases, be able to bring the resources of art to the assistance of nature. The hypothesis leads us further, for it raises the all-important question: Could the vital resistance not be so much strengthened that disease would be prevented? Undoubtedly prophylaxis is the highest form of therapeutics, and of late, both by the cultivation of sanitary science, and by the practical demonstration of the use of anti-toxins in the treatment of diseases, great advances have been made in this direction. The study of the former, by bringing promi-

nently forward the laws governing health, teaches not only individuals, but also whole communities, the value of an abundant supply of fresh air and of pure water, combined with a perfect system of drainage; while the latter has shown that the blood, when it is supplied with a quantity of a specially prepared serum, is reinforced by those very constituents of which it was most in need, and without which the recovery of the patient was impossible. The study of antitoxins is as yet in its infancy, and so far we possess specifics of this kind antagonistic to only a few diseases; but there is no reason to doubt that with the advance of science and the increase of knowledge serum treatment will come to bulk more and more largely in medical practice, until, perchance, we may at length be provided with a serum whose use at the right time will prevent that greatest of all ocular dangers—sympathetic ophthalmia.

Dealing still with the inner corpuscular life of the body we are reminded that the full activity of the muscle corpuscle is essential to health, and this affords a ready explanation of the great importance of both active and passive exercises in so many different morbid conditions.

In my own experience there is nothing of more value in checking the progress of myopia than a well-regulated course of Swedish gymnastics, and what is true of myopia is equally true of every form of the ametropia. It is not enough, more especially when one is dealing with the young, simply to adjust glasses suitable for the correction of the error of refraction. A quick estimate must at the same time be made of the patient's general strength, for it is most important to remember that, though the demand for work made upon the ciliary muscle may not be unreasonably great in itself, yet it may be altogether excessive in relation to the individual in whom it is made. While, therefore, the error of refraction must always be carefully corrected, so that the ciliary muscle may do its duty under the best possible conditions, every effort should also be made to develop and strengthen the whole muscular system by sufficiency of proper food, by drill, by exercise on the bicycle, or, preferably, on horse-back, and by an active outdoor life.

In the eye, just as in any other part of the body, the limits of muscular capacity must be respected, and the amount of work to be done

must be adjusted accordingly. How often do patients suffering from lack of nerve energy try to rest and read at the same time—for example, when invalids read in bed. They are attempting the impossible. The aching eyes and headache, of which they usually complain, are clearly due to nervous and muscular fatigue, and when there is any error of refraction, the ciliary muscle, already weary, becomes quite incapable of meeting the call on it. Day after day at the Glasgow Ophthalmic Institution I see children sent from the poorest schools of the city by their teachers “to get spectacles.” In nearly every case an error of refraction exists, but in many it is so slight that in all probability it would cause no trouble were the general health satisfactory. Most of these children are underfed, live in unsanitary houses, are the victims of unwholesome habits, and are in consequence physically unfit to bear the strain of continuous school work. Obviously, under these circumstances, it is wiser to prescribe rest for the eyes than to supply glasses, which, by the relief they afford, encourage the child to struggle, only to have, afterwards, under the stress and strain of preparation for the government inspection, a more serious breakdown.

It follows, then, that I have no sympathy whatever with those who desire to separate optical from medico-surgical ophthalmology. Such a divorce is most irrational, for under no circumstances can the living eye be treated simply as an optical instrument. The fitting of spectacles is neither a mathematically exact process, nor, in itself, a complete remedy—as the late Dr. John Brown, the gifted author of *Horae Subsecivae*, said, “The watch must be mended while it is going.” The eye is not only in the body but it is also of the body, and the proper treatment of its optical defects requires the physician’s skill just as much as does the treatment of its diseases.

On the other hand it cannot be insisted upon too often, or too strongly, that all these optical defects should be corrected early and thoroughly; for eye strain is accompanied by symptoms as numerous as they are varied, and its persistence is, in consequence, attended by grave dangers to the general health. The highest ideal of our profession is to discover and deal with all the causes of a disease, and these can only be found through a thorough knowledge of pathology. The more limited, therefore, the

pathological outlook, the more deficient will be the general treatment, and so it follows that therapeutics to be rational must be founded on an accurate knowledge of the natural history of the ailment. According to this view, disease cannot be regarded as a morbid entity, which for the time being has taken possession of the body, and of necessity must be removed by means of powerful remedies. On the contrary, it must be looked on as a natural process gone wrong, and the physician is the guide who, confident in himself, and full of the discretion and self-reliance begotten, and only begotten, of a power of accurate observation, pilots the sick man through the malady and brings him back to health. Whenever it is recognised that disease is due to the perversion of natural processes the path to its prevention or relief is at once made easier, for it is obvious that the very first indication for treatment is to maintain, or to improve, the nutrition of the body. The patient must be supplied with food of proper quality and in sufficient quantity to satisfy his needs.

As, however, the food, after passing through various preparatory changes, must be assimilated before it can be utilised for the nourishment

and the repair of the various tissues and organs, there must, for satisfactory nutrition, be a healthy state of the tissues themselves, the blood supply must be of good quality and in sufficient quantity, the nervous system must exercise a proper controlling influence, and heat and light must be present in abundance. No doubt some corpuscles, more especially leucocytes, inherit from the parent cell and possess, uncontrolled by any nervous influence, the power of absorbing nourishment from the blood; but it is certain, as far as the fixed corpuscles are concerned, that disturbance of innervation lowers nutrition, and lessens the power of resistance to the attacks of micro-organisms. In support of the statement that in many instances the nerves exercise a trophic influence over the tissues it is only necessary to mention blepharitis associated with errors of refraction, keratitis the accompaniment of zona ophthalmica, or ulcer of the cornea following extirpation of the Gasserian ganglion.

Existing contemporaneously with the process of assimilation there is also always a process of excretion. The corpuscles take up their food-supply from the blood or from the lymph,

absorb what they require, and reject the surplus, and throw off the effete materials. If the health of the cell is to be maintained at a proper standard, provision must be made for the complete elimination of these waste products; for if they be retained in the blood a state of general toxæmia will soon supervene, and this, if it persist for a considerable time, even to a slight extent, will, by lowering the state of the corpuscular health, seriously interfere with the resisting powers of the body as a whole. If, therefore, the nutritive value of the blood is to be maintained at the normal it is imperative that all toxins be removed at the earliest possible moment, and to this end Nature has made provision in the bowel, the liver, the kidneys, the skin, and the lungs. The constant and free activity of these channels of excretion is essential to health, and if, by reason of illness, the function of one be temporarily interrupted, the others are always ready to undertake vicarious duty. A very short clinical experience will, however, prove that the full functional activity of any one, *e.g.* the skin, is, under certain circumstances, of more value than the combined activity of all the others. For

example, in the early stages of diseases of the uveal tract a mercurial purge and alkaline saline draughts stimulate the liver, bowels, and kidneys, and their administration is often attended by the most satisfactory results; whereas in inflammation of the optic nerve, of retrobulbar origin, relief is more quickly obtained by free diaphoresis; and in toxic amblyopia due to the abuse of alcohol and tobacco (the causes of the trouble having been removed, and digestive disturbances corrected by appropriate means) vision returns most speedily under the strengthening influence of a sea-voyage, or of a sojourn in the dry bracing air of the mountains—conditions in which the blood receives a plentiful supply of oxygen.

One of the most familiar examples of the evil result of improper feeding accompanied by defective elimination is found in phlyctenular conjunctivitis, and I therefore select the treatment of this disease as a practical illustration of what I have been saying. The sufferers from strumous ophthalmia are very numerous, and are for the most part children under ten years of age. Although some of them may present the outward appearance of good health,

most of them are, owing to defective assimilation and excretion, either abnormally pale or unnaturally livid. They have but too obviously inherited the miserable legacy of constitutional weakness; and the inherent vulnerability of their tissues has been intensified by improper dieting and by overcrowding in unsanitary houses. They are called scrofulous, but as yet there are no symptoms to show that the tubercle bacillus has effected a lodgment; and careful examination fails, as a rule, to discover it lurking in the conjunctival sac, although it is in children such as these that one would expect to find this micro-organism developing and increasing most rapidly. The Germans speak of them as "candidates for tuberculosis," and the increase of lymphocytes, together with the deficient supply of multi-nuclear leucocytes, in the blood, mark them out as badly protected against any form of infection. The eye trouble very often follows an attack of measles or other of the exanthemata, and although under favourable circumstances it may speedily subside, it has a most characteristic tendency to recur, unless every cause be taken in hand from the very outset. If left alone, or simply treated by

local remedies, the ophthalmia often proves to be the very first warning of the imminent danger of tubercular infection. This is especially likely to happen in those patients in whom photophobia is most distressingly persistent, although lesions of the conjunctiva or of the cornea are at first absent, or are of a very trivial character.

It is by no means unusual for the conjunctivitis to alternate with suppuration of the middle ear, or with eczematous eruptions on the head or other parts of the body. Nutrition is seriously interfered with, and the coated tongue studded with large red papillae shows the irritable condition of the mucous membrane of the whole intestinal tract. There is sometimes a constant craving for food, and almost invariably more is eaten than can be digested; fermentation results, the belly is distended, and the alvine evacuations have an offensive smell and an unnatural appearance. The urine is high-coloured, deposits urates, and often contains traces of sugar. The skin is pale and rough, the flesh hangs loosely on the bones, the hands and feet are often persistently cold, and the head perspires freely. After a time the system becomes

infected by tubercle bacilli, and then the joints, both large and small, are very frequently destroyed by tubercular inflammation of their synovial membrane and caries and necrosis of the bones. Severe ectropion—causing hideous disfigurement—will arise if the bone necrosis occur in the neighbourhood of the orbit; and indelible scars invariably result if there be suppuration of the lymphatic glands in the neck or elsewhere.

Unless the cornea has, through neglect, become ulcerated, local treatment consists simply in keeping the child's face and hands clean, and in applying sedatives to the eyes. The real treatment of the disease is constitutional. It is necessary always to bear in mind that the very essence of the ailment lies in the mal-assimilation of food, and that most, if not all, cases arise as a result of improper dieting. You may be told that the child pecks and trifles with its food, and eats very sparingly, and that may be quite true as far as the regular meals are concerned; but by careful inquiry you will usually discover that the small appetite at the proper times for eating arises from the patient's having been, in response to cries for "a piece," supplied liberally

between meals with bread and butter, sweets, fruit, or any other eatables that may have chanced to be at hand. Many think that the good appetite is a sign of good digestion, though all the time the latter is so poor that in the overladen bowels toxic substances are constantly being manufactured, and these, after they are absorbed, excite abnormal effects both in the eyes and in all the other tissues of the body. Instead, therefore, of eating too little, these children eat too much; and although they may appear ill-nourished, the mal-nutrition is due to mal-assimilation rather than to insufficiency of food. The first thing to be done, therefore, in treating a case of strumous ophthalmia, is to give particular directions regarding the diet. The child must not be allowed to eat whenever it cries for food, but ought to be fed at regular intervals. Nor must it get what is among the poor popularly called "the run of the house"; it should have meals specially prepared, and in quantity and quality of such a kind as not to overtax the powers of digestion. Sugar in every shape and form, fruits, pastries, potatoes, etc., must be rigidly excluded from the dietary, and it is usually advisable to confine the patient

wholly to milk and water for the first forty-eight hours of the treatment, and then to add gradually meat-soups, eggs, fish, fowl, rice, etc., as the tongue becomes clean.

In addition to the careful supervision of diet, the free elimination of the toxins, which, as a result of mal-assimilation, have accumulated in the blood, must in every way be promoted. This is to be accomplished by stimulating the action of the kidneys, the bowels, and the skin—more especially the last. Hence the importance of the hot bath, which the child should have every night at bed-time, diaphoresis being further encouraged by the wearing of a warm flannel nightgown. It is usually advisable first of all to administer a dose of castor-oil; but it should be borne in mind that many of these children do not bear purgatives well, as the intestinal mucous membrane is so irritable that troublesome diarrhœa is easily induced.

Of drugs, none is so useful as tartar emetic, which should be given, as Mackenzie advised, in slightly nauseating doses. Its chief virtue depends on its diaphoretic action, and its efficacy is greatly increased when it is administered with a laxative, *e.g.* powdered rhubarb. If the

tongue be brown, a few grains of grey powder may, with advantage, be added to the rhubarb and antimony combination. Under this treatment it is wonderful how soon the whole appearance of the patient changes. As the power of digestion becomes greater, the skin improves in colour, the hair loses its dry and brittle character, the hands and feet keep warmer; and the child, instead of lying with its face buried in a pillow, and fretting and crying when spoken to, is now quite good-tempered, and runs about and amuses itself with its play-things. Any indiscretion in diet will, however, promptly bring on a relapse, for in these cases the conjunctiva reflects the condition of the gastro-intestinal mucous membrane even more quickly than the tongue. After some forbidden food has been eaten, intolerance of light, blepharospasm, and increased lachrymation, speedily show themselves, while the tongue may not become furred till some days after. The fear of relapse makes it imperative, therefore, that treatment be continued for at least a fortnight after the recovery seems complete.

As soon as possible the child ought to be sent to the country, preferably to a high, dry,

bracing locality, and it should live out of doors as much as the weather will permit. The sea-coast should be avoided, as the glare from the water is apt to prove irritating to the eyes, and to cause a relapse. In an ordinary case of strumous ophthalmia no further treatment than that just indicated is required. If a case is not making satisfactory progress, careful inquiry should at once be made as to whether the prescribed diet and the nightly warm bath are being strictly attended to.

Whenever the child's power of digestion, respiration, and excretion become healthy, fewer restrictions as to diet are necessary, and a plan of treatment may then be entered upon to improve the general nutrition still further, and to promote the repair of any local lesions in the eyes themselves. Such restorative methods aim at supplying the blood with something specially needed at the moment, but if they were to be commenced prematurely they would do much harm by adding to the child's difficulty in assimilating food. In every attempt to assist recuperation the all-important indication is to stimulate appetite and to

strengthen digestion by means of simple tonics, and on no account to prescribe iron, phosphates, cod-liver oil, or the hypophosphites if the tongue be either coated with fur, or red and irritable.

It is not necessary to discuss this subject further, for the guiding principles applicable in the treatment of strumous ophthalmia apply with equal force to the general treatment of all eye diseases of constitutional origin. The first condition of success is to find out what is at the root of the trouble—be it syphilis, gout, rheumatism, or anything else—to prescribe appropriate remedies in such dose and state of combination as will suit the individual patient, and then to persevere steadily until the disease be overcome. The all-important point is to make a searching diagnosis early, so that from the first the treatment may be both local and constitutional. Neglect may bring about complications, and, of course, if the tissues be destroyed, no amount of anti-syphilitic, anti-rheumatic, or any other kind of medicine can replace them. In many instances, on the other hand, when, to begin with, the prospects of success are not hopeful, earnest perseverance will accomplish

much, while intermittent and unsettled efforts will altogether fail.

What I have just said must be taken as applying to the line of treatment rather than to any particular drug, for it cannot be too strongly urged that, no matter how high the reputation a remedy may have, it at once does harm to the individual for whom it has been prescribed if it interfere with his powers of digestion and assimilation of food. It is a matter of common observation that the sight of those suffering from atrophy of the optic nerve, or from disease of the choroid or retina, deteriorates much and quickly whenever there is gastro-intestinal disturbance. He is, as a rule, the most successful practitioner who can at once vary the preparation and the combination of the drugs to suit the peculiarities of the patient, and at the same time never depart from the line of treatment he has laid down for himself. Such resourcefulness on the part of the doctor is of the greatest value to the patient, and I would add that in medicine, probably more than in any other profession, the personality of the practitioner counts for much. That is where the man himself and his natural endowment tell, but though this per-

sonal power has the obvious advantage of inspiring the patient with hope at a time when the disease may seem to be pressing on with such resistless force that he is beginning to despair, it has the disadvantage that the influence of the doctor dies with him. His successors may model themselves on his manner and methods, but there must always be a difference.

That leads me to say that one of the greatest hindrances to a proper study of therapeutics is the ease with which remedies are supplied to the doctor by the manufacturing chemist. These drugs, the products of the chemical laboratory, are advertised largely, and are said to effect so much good that there is a great temptation to try them, and if, perchance, urgent symptoms disappear after their use, they are only too apt to be employed indiscriminately. The mixtures so supplied are elegant and palatable, and the pills, tabloids, etc., are very convenient and easily swallowed; but it is only when he writes his own prescriptions that the practitioner can make himself so thoroughly familiar with the properties of drugs, that he is at once able to vary his formula to suit the needs and idiosyncrasies of an individual patient. There is much to be said

in favour of the apprenticeship system in medical training, for with drugs, as with all other things, you can never know them properly until you have handled them and dispensed them.

Assimilation, elimination, and recuperation embody the great principle underlying all rational therapeutics; but before concluding I must refer briefly to rest, in so far at least as it is an aid to nutrition. During tranquil sleep the restorative powers of Nature work undisturbed, and in calculating the risks of an operation Paget very wisely emphasised the fact that a patient's capacity for sleep was of the utmost importance. I do not recollect ever having had serious trouble with an operation case when the patient slept soundly for several hours after being taken back to bed; and in order to induce post-operative slumber it is my usual practice, half an hour before the time fixed for the operation, to administer a draught containing the triple bromides. On the other hand, when a patient is wakeful and talkative, and keeps constantly tossing about in bed, it is almost impossible for the wound to heal by first intention. Unless means be quickly discovered to keep him quiet, it is usually wiser

to remove the bandage and allow him to leave the recumbent position and to sit on a chair, when he may obtain the needful rest. One of the reasons why pain does so much harm after an operation is owing to the restlessness it induces; consequently, if I think there is much chance of a patient suffering, my practice is to give a small dose of morphia hypodermically. This, by ensuring several hours of continuous repose, gives Nature a healing chance, of which she is never slow to avail herself to the utmost.

It is not good practice, however, always to subdue pain, for it is, if rightly interpreted, oftener kindly than hurtful. As a rule it is a danger signal, warning both surgeon and patient of something wrong. For example, if pain recur some days after a serpiginous ulcer has been carefully cauterised, it is almost certain that reinfection has taken place, and the prompt application of local antiseptics may save much future trouble. The eyelids form natural splints for the eyeball, and close instinctively whenever the globe is injured. This movement not only protects the eye from further harm, but also relieves the patient by keeping him in the dark—the physiological rest for the

eye. As a sequel to diseases of the choroid or of the retina a cataract frequently forms, and by shutting out light secures rest, and gives Nature the opportunity she has been seeking for the repair of the deep-seated mischief; and so successful is she, that if after a time the cataract be extracted the visual result obtained is often far beyond our expectations. In the same way atropine, by paralysing the ciliary muscle, keeps the eye at rest; and few things are more wonderful than the rapidity with which, after the efficient application of the mydriatic, pain is relieved and a turning point is reached beyond which the patient is on the road to perfect restoration to health.

In one of the charming papers of Dr. John Brown, to whom I have already referred, he tells that, when a student asked a celebrated artist how he mixed his colours, he received the unexpected reply: "With brains, sir"; and such an answer is as true in regard to therapeutics as it was under the circumstances which called forth those striking and memorable words. What is wanted in this very advanced age of medicine is not more learning, but the more exact application of what we have. We

require to be made more conscious of the power of knowledge properly employed. Our experience teaches us facts, but it is only when, through a study of pathology, we get an explanation of the laws and principles underlying the facts, that we can act with a well-defined purpose, and can utilise our knowledge in the highest interest of humanity.

Retrospect is always instructive, for it is from the experience and lessons of the past that the requirements of the future may be deduced. And what a past has ophthalmology! When we recall the name of Mackenzie, of von Graefe, of Donders, of Helmholtz, of Bowman, of Critchett, and of your own countrymen, Williams, Agnew, Loring and Norris, what visions of intellectual power, of manful and patient purpose, of earnest effort in the pursuit of truth, of the bright flash of illuminating genius, rise before us. These founders of modern ophthalmology, these masters of our science, had not our opportunities, but they possessed a thorough grasp of the clinical history of disease; and their strong common sense, begotten of observation and experience, enabled them to see what could be done by art,

and what was best left alone to Nature. They may have known less than we do, but, if anti-septic surgery be excluded, their practice in the treatment of disease was not a whit inferior to that of the present day.

Time would fail, and words are inadequate, to describe what manner of men these were who have adorned our profession and have left us the legacy of their skill and of their characters. Let us remember that we in our turn have a legacy to bequeath, and if we are to hand on to our successors a splendid heritage still greater and grander than that which we ourselves have received, we must try more and more to be animated by the spirit that inspired the masters of the past, and to seek to work, as did they, with singleness of purpose, untiring industry, and steadfast faith. "With firmness in the right as God gives us to see right, let us strive on to finish the work we are in," and, while we prove all things, let us see to it that we hold fast only to that which is good.

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