but we can urge that the partner selected should be of calm and well balanced mind, and free from all nerve-proclivities. Unfortunately, excitable unstable folk have an attraction for each other as remarkable as it is unwise. If the tendency be marked, the prohibition should be absolute. It is far better to endure isolation, and to miss the comfort and solace of married life, than to bring sorrow on others, and unknown ills upon offspring. To choose a partner beyond the age of child-bearing is one way out of the difficulty; but choice in these things is guided by feeling rather than by judgment, and love is so blind and persistent, that our wisest counsels are often disregarded.

The chiefest safeguard comes last, for I should be guilty of a fatal omission, and false to my deepest convictions, if I did not regard as the chiefest, faith in the unseen God. The relation of religion to insanity is often misunderstood. When the gloom of a melancholic takes a religious type, what is but a symptom is often regarded as the cause; the case is called religious insanity, and religion is supposed to have produced the disorder. It would be as accurate to regard the imaginary ailments of a hypochondriac as the cause of his condition. Cases certainly do occur in which true religious anxiety has produced insanity; and it would be strange indeed if the subject which is greatest of all, and which stirs the mind most deeply, did not sometimes overwhelm it; but too often this sad result has followed from views of religious truth so false and distorted as to be a libel upon its name. There is no security for conduct, no strength for duty, no support in sorrow to be compared to that which true religion affords. Tempests of trouble will not overwhelm the man who endures as seeing Him who is invisible.

AN ADDRESS

DELIVERED AT THE OPENING OF

THE SECTION OF OPHTHALMOLOGY AND OTOTOLOGY.

At the Annual Meeting of the British Medical Association, held in Cardiff, July 1885.

By HENRY POWER, M.B., F.R.C.S.,

Senior Ophthalmic Surgeon, and Lecturer on Ophthalmic Surgery, at St. Bartholomew's Hospital; President of the Section.

ON PROGRESS IN OPHTHALMOLOGY.

It is just 300 years since the first English work on the eye was published, I believe, by Richard Banister, Master in Surgery, Oculist and Practitioner in Physic, though without his name, under the title *Of the Preservation of the Eyesight*. The author of this curious little treatise, which I here show you, and for a copy of which I am indebted to my learned friend, Dr. Aquilla Smith, gives in 23 pages the regimen it was then thought advisable to adopt in order to preserve the sight, together with the chief lotions, syrups, and juices that should be applied to the eye in disease. Its perusal by one familiar with the modern practice of ophthalmology affords a measure of the advances that have been made in recent times, whilst it is interesting to read the singular notions that ignorance and prejudice have engendered, and which are handed down by tradition and half believed, even when the light of a better day has begun to dawn.

In one page, for example, the author declares that "no fishes are good;" in another, "that milke and all things made thereof are found by experience to induce dimness of sight;" in another, that "all waterlowe are to be dispraised;" and in yet another, that "of rawe herbs few are to be commended, and these are to be avoided as most hurtful, namely, lettis, coleworts, cabbages, beets, spinage, purslane, buds of dill, garlick, chilbotts, onions, skallions, etc.," leaving the reader to wonder what vegetables are left to be consumed in the scanty list of potherbs of that not very distant period. Permission, however, is soon discovered to be given for the use of fennel, eyebright, young sage, and tarragon, none of them particularly attractive to modern tastes, or likely to be indulged in to excess. The only remedies mentioned that are now in use are cubeb and sal gemma, though, perhaps, one or two, ascelandine and vervain, might possess some stimulant and astringent power. An inordinate value is placed upon spices, such as cinnamon, ginger, cloves, mace, nutmegs, capers, and the several kinds of peppers, perhaps because they were then of comparatively recent introduction; but the most important of all domestic remedies in our author's opinion is euphrasia, or eyebright, which,

following Arnoldus de Villanova, he holds to possess miraculous virtues, and to be good any way taken, "either with meate, drinke, or as medicine, green or drie, against all impediments of sight whereby the clearness of the same may be obscured." By the use of wine made with eyebright, "old men's sights are made younge, it taketh away the impediments of the sight in all men of all ages, specially in fat men and such which do abound in phlegm."

About 36 years later, in 1622, another work was published by Banister, in which the formerly written small treatise on the *Preservation of the Eyesight* was included, and which professes to be "a worthy treatise of the eyes, containing the knowledge and cure of one hundred and thirteen diseases incident unto them." In this quaint work, much sound knowledge, drawn from classical sources, and illustrated by observation and experience, is mingled with popular errors and absurdities." Thus he says: "The mistaking the use of some medicines spoyle many an eye, as thus, some will put a lowse in the eye, which is good for this cause, used as when the eye is dull, obscure, and dry, so wanteth humours and spirits. A lowse then put into the eye tickleth and pricketh, so that it maketh the eye moist and rheumaticke, and quickeneth the spirits; but, being used to an inflamed eye that hath a flux, it increaseth the flux and inflammation, and so doth much hurt." Thus it appears that this remedy approved itself to his mind as a mode of treatment; only the cases should be judiciously selected.

But, whilst smiling over some of Banister's crudities, his treatise is still, for those who are fond of old books, worth reading. Banister's method of couching—the only operation then known for cataract—though intermingled with some absurdities, is nevertheless essentially sound. Spring, he says, is the best time to undertake the operation, since great heat, cold, or rain are objectionable. Some preparatory lowering treatment should be insisted on; the patient must eat little, and drink water or some other thin drink, for the space of two or three days before the couching is attempted; and, "especially on the day before, his eating and drinking must be of marvellous sobriety." The operation is described as it might be practised to-day, except that the surgeon is directed "to rubbe the right eye with the left hand, and the left eye with the right hand, before he begin his work; or rather, let some child having a very clean mouth chew fenel or aniseed, which, when he hath spit forth, let him breathe upon the diseased part, that by this means the cataract may be made more thin and smaller." In dressing the eye, "a candle should be placed behind the patient, lest the eye be troubled." The occurrence of hæmorrhage into the anterior chamber is noted, and its frequent spontaneous disappearance insisted on. Finally, the suction-method is described; "the eye being pricked with an hollow needle, that by the hollowness of it the humour of the cataract may be raised up and drawn forth."

In the three centuries that have elapsed since the time of Banister, what advances have been made along the whole line, and what a contrast to his little treatise is presented by the valuable compilation, the work of many writers, which was completed a few years ago, and edited by Alfred Gräfe and Theodore Sämisch! The coarse anatomy of the eye has been thoroughly worked out. A few points only in the microscopical anatomy remain to be settled. Its development, and the causes of congenital defects, have been carefully studied. Its physiological peculiarities have been investigated, and have given rise to a special branch of research in which a close connection between physics and the functional activity of this organ, known as physiological optics, has been created. But specialties within our specialty, departments of our department of surgery have been gradually formed, in which, by practice and experience, such skill may be gained as may prove of infinite service to particular patients, and details in regard to which some reference will hereafter have to be made, if the account of a case is to be complete, though their names still sound strange in our ears, and were all unknown to Banister and the surgeons of his day and the following century. I refer to those inquiries which relate to eidiotometry, or the determination of visual acuity; photometry and photoptometry, which deal with the intensity of light and the response of the retina to varying degrees of light; chromatometry, or the reaction of the retina to colours; periophtometry, or the determination of the extent of the field of vision; diophtometry, or the determination of the refraction of the eye; entoptoscopy, or the study of the intra-ocular shadow; optasioscopy, or the response of the retina to mechanical and electrical stimuli; ophthalmotonometry, or the determination of the tension of the globe, so important in the diagnosis and treatment of glaucoma; ophthalmostatometry, or the determination of the relative position of the eyes; ophthalmometry, or the measurements of the diameters of the whole globe, and the size of its several parts; ophthalmoscopy, or the examination of the eye by means of the ophthalmoscope; ophthalmotropometry, or the exploration of the

movements of the eye; and pupillometry, or the measurement of the size of the pupil, all of which are duly discussed in the large treatise now in course of publication by Wecker and Landolt. Many of these subjects are recondite in their nature, and require not only carefully constructed apparatus, but the nicest adjustment of their parts, and the utmost precision in their use, to render them serviceable. The only drawback to them is the time that is required for their application, though it can scarcely be doubted that, if each of these modes of investigation were followed out in every case, many points that are now obscure would become apparent, and our treatment of disease proportionately improved.

It is not, of course, to be expected that each and all of them should be equally familiar to the practitioner, but, in looking forward to the ophthalmic surgeon of the future, if he is to maintain the reputation and position of his predecessors in this branch of the profession, it appears to me that two things will be necessary: first, that he should possess a sound general knowledge of medicine and surgery; and, secondly, that he should have a good preliminary training in physics and mathematics.

No doubt refraction-cases can be treated, and for the most part successfully treated, by men possessing a practical acquaintance only with the rules which determine the adaptation of glasses to remedy certain defects in the form and structure of the eye; but the ophthalmic surgeon, even when the best results have been obtained, is then no whit superior to the opticians, who, much to their credit be it said, by the application of a few simple rules, manage to supply the glasses their customer needs. To place himself on a higher level than they, it is absolutely necessary that he should understand thoroughly, not only the anatomy and physiology of the eye, but the general principles of optics, and this requires an education. It is this education that I would strongly recommend all those who intend to practise ophthalmic surgery to pass through.

But if an adequate knowledge of the principles of physics, and especially of optics, be constantly required in ophthalmic practice, how much more important is it that this branch of the profession should not be pursued as a specialty, without the possession of a broad and sound knowledge of medicine and surgery! Whilst the eye has afforded to pathologists some of the most reliable facts with which we are acquainted in regard to the causes, phenomena, and events of disease, it would be absurd to deny that our treatment of any case must be founded on a correct appreciation, not of the local changes only, but of the constitutional states which engender and modify local disease. Many of the best essays that have appeared of late years have been directed to show the immediate relation that exists between local and constitutional disease, and a knowledge of both is essential to successful results in practice. It is for this reason I hold that no man should commence ophthalmic practice without long preliminary work in general or dispensary practice, or in the wards of a hospital; and I venture to dwell strongly upon it, because I think there is a tendency amongst the younger members of the profession to regard ophthalmic practice as an easy means of obtaining a livelihood, which is at once less troublesome, cleaner, and more satisfactory than any other branch of surgery.

In now turning for a few moments to the recent advances that have been made in our special province, I may, in the first place, refer to the praiseworthy efforts that have been made by Dr. McKeown, of Belfast, and others, during the past year, to diminish the number of cases of blindness from the purulent ophthalmia of new-born children, by disseminating amongst the laity rudimentary knowledge in regard to the nature of the disease, and of the very simple but efficacious means by which its progress may be arrested in its earlier stages. There cannot be a doubt that this disease supplies a large contingent of cases to our blind-schools and asylums, and much might be done to prevent its occurrence if it could be impressed on the mind of the public, that the injection beneath the lids of the child of a weak solution of almost any of the antiseptic substances, such as Condy's fluid, alum, the sulphate of copper or zinc, or even of cold water, several times during the day, or as often as any matter shows itself at the angles of the eye, and the pencilling of the edges of the lid with a little olive-oil to prevent their adhesion during sleep, are all that is required to arrest or to prevent the supervention of an attack of purulent ophthalmia. Some of the foreign ophthalmologists have, indeed, gone a step farther, and have proposed and practised, with remarkable success, intravaginal injections shortly before delivery, whilst others adopt the plan of applying a weak solution of nitrate of silver to the eyes of every infant as soon as born, also with excellent results. Whether, as Dr. McKeown suggests, the poor-law and birth-registration organisation can be utilised for that purpose remains to be seen; but it is certain that, if carried into effect, it would materially diminish

the number of the blind now occupying our infirmaries and charities. In speaking of blindness from this or any other cause, I am reminded of a want that is sometimes severely felt in this country, namely, the absence of any institution for those who are partially blind. The totally blind are well provided for, and it is only necessary to look down the pages of that excellent little manual, *Fry's London Charities*, to see how many portals are open to those who are thus afflicted, where they are taught to employ themselves rationally, to earn in many cases an honest livelihood, and to know that life may still be enjoyed though wisdom be at one entrance quite shut out. From all these advantages the partially blind are almost, if not entirely, cut off. To be able to see to guide themselves about is sufficient to exclude them from most, if not all, the London institutions, and there are many who would well repay cultivation, and who certainly require education as much as those who are wholly deprived of sight.

New remedies are constantly being introduced into practice, some of which take their place as permanent additions to our pharmacopoeia, whilst others, after trial, fall into disuse. Within the last few years, we have seen eserine, homatropin, duboisin, jequirity, and cocaine introduced.

Jequirity.—The infusion of the active principle of the *abrus precatorius* has taken no firm hold of the practitioner in this country; either the cases in which it has been found most useful abroad, granular lids with vascular pannus, are not of so severe a nature, or it has been felt that the violence of its action cannot be controlled; inflammation of the lacrymal sac and sloughing of the cornea have been induced, or other remedies have been found equally effective.

Duboisin has proved painful and dangerous without equivalent advantage. It is different with the others. *Eserine* undoubtedly occupies a high rank in the list of remedies in ophthalmic surgery, and perhaps it may be placed in the same line with atropine and with cocaine. With only these three remedies in his case, the ophthalmic surgeon may do much towards the cure of many ophthalmic affections.

Homatropin is a satisfactory remedy when quick and brief dilatation of the pupil is alone required. When complete relaxation of the ciliary muscle is not wanted to determine errors of refraction, it supercedes atropine.

Cocaine or Cucaine.—The last remedy which has been introduced into ophthalmic practice seems to be of at least equal value with those I have just mentioned. In cocaine, a local anæsthetic has been discovered which abolishes the use of chloroform, with its risks and dangers, in cataract-operations, in all operations affecting the cornea, and in those affecting the conjunctiva alone, and which materially reduces, if it does not altogether remove, the pain of operation on the iris and the muscles of the eye, as well as on the lacrymal apparatus. This is indeed a great boon. Immense as are the advantages of chloroform and ether in preventing pain from being felt, and in maintaining the patient at such perfect rest as will enable the surgeon to perform delicate operations with precision and at his leisure, and to change and modify his proceedings with the exigencies of the case; still these have their disadvantages. A fatal issue in the case of chloroform, when skilfully administered, is, indeed, of extremely rare occurrence, though, on these grounds, for many years past, in all cases requiring operations admitted into the ophthalmic wards of St. Bartholomew's Hospital, in which an anæsthetic was given, chloroform has been selected in preference to ether, and no bad results have as yet occurred.

In the discovery of cocaine, however, a new era seems to have dawned. Since its introduction at the beginning of last year, many of the minor operations have been performed under its influence, and it seems to be admirably adapted for cataract-operations without iridectomy, which can be performed after its application for a few minutes without the slightest pain being experienced.

In relation to the action of this drug, I would desire especially to call attention to the valuable results of an experimental enquiry into its properties, which has just been instituted by Mr. Jessop, of St. Bartholomew's Hospital, supplemented by clinical observation and experience. His investigations have led him to conclude that it acts essentially as a stimulant to the sympathetic system of nerves, in consequence of which it effects dilatation of the pupil, constriction of the blood-vessels, diminution of the intra-ocular tension, enlargement of the palpebral fissure, and protrusion of the eyeball. His observations are of interest as affording an additional link in the chain of evidence proving that the sympathetic system innervates the dilator fibres of the pupil. It has appeared to me that the operations I performed with the first specimens of cocaine obtained, were attended with less pain, and also with less dilatation of the pupil, than those of more recent date. Is this owing to the drug having been less carefully prepared to meet the great demand, or is it due to some variation in

the composition and activity of different specimens, or, finally, is it owing to the circumstance that it produces more anæsthesia in some persons than in others?

Quite recently an interesting communication has been made to the Physiological Society of Berlin, on the influence of two of these drugs on intra-ocular pressure. Grünhagen first, as everyone knows, by means of a delicate mercurial manometer, showed that the pressure in the interior of the eye of a living cat was 26 millimètres, varying with condition of blood-pressure, and that after death it fell to 10 millimètres. He showed, too, that by stimulation of the fifth nerve it could be raised to 200 millimètres. These statements have been supported by other observers, but considerable differences of opinion have existed in regard to the action of the alkaloids. Dr. Hölitzke has employed a double manometer, and compared the tension of the eye to which an alkaloid had been applied with that of the opposite normal eye, and from his experiments it appears that eserine produces at first a considerable augmentation of the pressure, and then a reduction of it to a point below the normal. Atropine, on the other hand, first decreases and then augments the intra-ocular pressure.

Iodoform.—Another agent that has proved unexpectedly serviceable in conjunctival and corneal affections, is iodoform, which seems to exert a powerful influence in arresting the purulent discharges that accompany various forms of conjunctivitis, and has been strongly recommended in croupal and blenorrhagic affections, and in inflammation of the lacrymal sac, the most convenient mode of applying it being in the form of an ointment combined with ten times its weight of vaseline. In the BRITISH MEDICAL JOURNAL for July 25th, a letter appeared from the pen of Dr. Humphry, of Cambridge, in which he drew attention to the resolution of the Collective Investigation Committee, which insists on the advantages that would result from the establishment of a closer union between that committee and the several sections of the present and future meetings. This resolution runs in the following terms.

“That the Chairman be authorised to write to the Chairman of the Council, expressing the feeling of this Committee that it would be very desirable for the work of the Committee to be associated with the work of the sections of the annual meeting, and that this Committee is desirous of receiving suggestions from the said sections for further inquiries, and of co-operating with the sections in carrying them out.”

We must, I think, acknowledge the truth of Dr. Humphry's observations, and admit that there are many points which still require elucidation, and which will probably only be thoroughly cleared up by the combined investigation of the anatomist, the histologist, the physiologist, and the clinical observer, all directed to the same end. Amongst those which appear to stand most in need of collective investigation, and in regard to which we are still waiting for exact knowledge, are the intra-cerebral course of the fibres of the optic nerve, enabling a clear and rational explanation to be given of the puzzling cases of hemianopsia that not unfrequently present themselves in practice. Who will classify for us the causes that lead to sympathetic ophthalmia, and explain why it should occur in some instances, and be absent in others?

Although many interesting observations have been made which aid in the solution of the difficult question of the etiology of sympathetic ophthalmia, there is still wide divergence of opinion in regard to the mode in which the disease is propagated amongst those who are best qualified to judge, a want of agreement that is probably due to real differences in different cases, and, perhaps, also due to imperfect observation. Here, as in some other examples, a settlement of the question will be effected by many converging lines of research, which it should be the function of the Collective Investigation Committee to collate and expound. It is only in this way that it will be ascertained whether it is, as some hold, of a reflex nature; or, as others believe it to be, an inflammation travelling down the optic nerve, or along the ciliary nerves; or, as yet others believe it to be, a disease of a secondary septic nature, either due to the entrance into the system of micro-organisms by injury or disease of the opposite eye, or as a kind of blood-poisoning, the poison being germinated in and by the lesion of the opposite eye. The imperfect state of our knowledge on this subject was rendered manifest in the discussion at the last meeting of the Ophthalmological Society, on the president's ingenious hypothesis that it was a case of blood-poisoning and symmetrical affection.

How much again still remains to be done in regard to the causes which lead to suppuration after operation? Excellent and valuable as the researches and experiments of Professors Leber, Landmann, and others are in regard to this point, there seems to be something wanting in experiments which show that a fragment of iron, steel, or lead introduced aseptically into an anterior chamber of the eye, excites no inflammation, while a fragment of copper, if in contact with the iris,

excites suppurative inflammation, but not if it be fixed in the lens, though it may project freely into the aqueous humour, whilst mercury always excites this form of inflammation.

Who has advanced for us a rational theory of the relative value and functions of the rods and cones? Why should the latter be exclusively developed at the yellow spot; what relation have they respecting to colour and form-perceptions; what is the value of the retinal pigment; and to what circumstance, anatomical or physiological, are we to attribute colour-blindness?

A subject of almost equal practical importance is the etiology and treatment of lacrymal obstructions, which are amongst the most few and the most recalcitrant of ophthalmic diseases. How many cases present themselves in which, after the canaliculus has been divided longitudinally, and a probe of large size passed down the nasal duct, the tears still continue to overflow, owing apparently to the impairment of the muscular action by which the exhaustive or compressive action of the sac is effected?

During the last year or two, various ophthalmoscopes have been made, in which the principle of construction always remaining the same, minor modifications, rendering the instrument more handy or more perfectly adapted to the investigation, not only of the aspect of pathological condition of the eye, but of those less easily recognisable defects which are included under the head of errors of refraction. Amongst these new forms of ophthalmoscopes, I may mention Mr. Cooper's, Mr. Frost's, Dr. Johnson's, Mr. Morton's, and Mr. Benson's.

It has now become trite to say that the general practitioner might often obtain useful hints in regard to the nature and treatment of disease from a careful inspection of the fundus of the eye, even were he unable to recognise the finer gradations of colour, or the more delicate lesions which are discernible by a practised eye. Optic neuritis and hæmorrhages are sometimes amongst the earliest symptoms of Bright's disease; similar appearances recognised in the later months of pregnancy might open the question whether it were expedient or not to induce premature delivery, and thus save lives that would otherwise be lost by the supervention of puerperal convulsions. Finally, a study of the fundus of the eye in such affections as whooping-cough, in measles and in scarlatina, in diabetes, in cases of disordered catamenia, and in locomotor ataxy, would be replete with interest, and supply information much needed in regard to the failure of vision in the later stages of, or after recovery from, these diseases in the elucidation of them and many other.

The Ophthalmological Society of the United Kingdom has justified its establishment by the numerous and excellent papers and memoirs that have been read at its meetings, the interest that has been shown in its proceedings by its members, many of whom come from remote parts of the country, our Irish brethren being conspicuous in this respect, by the numbers which are always present, by its animated discussions, and, finally, by the distinguished position of its Presidents, Sir William Bowman and Mr. Hutchinson, both of whom are representatives of the British school of ophthalmology, and have contributed to the advance of ophthalmic knowledge. That our meeting here may emulate, and, if possible, surpass those of the Ophthalmological Society in interest and value is, I am sure, the best wish I can give you, and I propose, therefore, without further prelude, to proceed to the business of the day.

PRESENTATION.—Dr. Robert E. Burges, of Kettering, has been presented, on behalf of the members of the two ambulance-classes (ladies and gentlemen), which were conducted by him during the spring of the year, with a copy of Holmes's *System of Surgery*, in three volumes, and an illuminated card, inscribed: “Presented to R. E. Burges, B.A., M.D., in acknowledgment of his kindness in gratuitously instructing two classes in ‘first aid to the injured,’ in connection with the St. John Ambulance Association.”

The annual meeting of the Northern Sanitary Association was recently held in the Liverpool Town Hall, Mr. T. Holder, the ex-mayor, presiding. The report pointed out that probably not one person in a hundred had the least idea whether his drains were even in working order. Colonel Wilson, in moving the adoption of the report, spoke of the possibility of cholera reaching this country, and of the importance of having all houses put in a proper sanitary condition, Mr. Clarke Aspinall, in seconding the motion, said the Association was a young one, but it was very promising; it was disinterested, and deserved practical support from the public. The very luxuries which English people had, such as hot and cold water, were frequently the means of bringing sewer-gas into houses. Unless the utmost care were taken by tradesmen in laying down the pipes, the greatest mischief would arise. The motion was adopted, and the meeting shortly afterwards terminated.