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EYE SURGERY

BY

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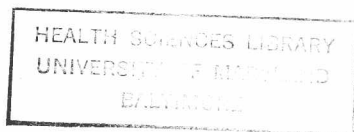
THIRD EDITION, REVISED
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TO
GWYNNETH CONSTANCE
MY WIFE



PREFACE TO THE THIRD EDITION

THE third edition of this book has been extensively revised and much of it has been re-written. Its original purpose was to describe fully the details of surgical operations which I believe have an accepted place in current practice and not to present an exhaustive literary omnibus which may fail to discriminate about the relative values of certain operations. To this aim I have held in writing the third edition. This individualistic manner of writing may not be comprehensive, but I hope that its character and some of its substance will afford a foundation on which the younger surgeons may build the superstructure of their own operative methods.

Chapter II on anæsthesia has been re-written and includes descriptions of the administration of basal narcotics, the relaxants curare and "flaxedil", hyalase, and the hexamethonium compounds. Much new material has been added to Chapter VI on corneal transplants. In Chapter VIII Ridley's acrylic lenticular operation is discussed, and in Chapter X the effect of radio-active disks in the treatment of malignant intra-ocular neoplasms is reviewed and compared with other forms of radiotherapy. The account of buried orbital implants in Chapter XI is revised.

I have tried to discuss fully the reasons for the techniques that I have found most suitable in various operations, and after describing these operations in detail I have commented briefly on alternative procedures and the practice of other surgeons of accepted repute. The large literature about plastic surgery is confused by a considerable number of accounts of operations many of which do not follow the principles of modern reconstructive surgery. These I have omitted, for they are either obsolete or destined to become so. In re-editing Chapter III about reconstructive surgery of the eyelids I have omitted the detailed description of the war wounds and a number of illustrations of these which were published in the first and second editions, and have condensed this subject to show by description, selected photographs, and drawings the basic principles of the reparative surgery of war wounds.

One hundred and fifty-three illustrations have been removed and two hundred and seventy-five new illustrations added. I have done all the drawings. Some of these lack artistic finish, but I hope they will serve their purpose. My excuse for not employing a professional artist is that I enjoy the work and believe it to be good training for surgical hands.

Although I have read much, but by no means all, of the literature about eye surgery, for purposes of economy in print and paper I have not added a list of references to each chapter but where relevant have quoted the reference to an author's work immediately following his name in the text.

I thank Dr. Sheila Anderson and Dr. I Braddon, my anæsthetists at Moorfields Eye Hospital, for their helpful criticisms about the section on

basal narcosis and general anæsthesia in Chapter II. To both of these I express my gratitude for the admirable contributions they have made to the technique of anæsthesia for eye operations and for the patient and skilful manner in which they have met the peculiar needs of this work.

I owe so much to so many for their example and teaching, in particular my chiefs the late Sir John Parsons, Mr. R. Foster Moore, and Mr. Rupert Scott. I am also appreciative of all I have learned by visiting colleagues in this country and surgeons in clinics abroad, from Dominion, American, and foreign visitors to Moorfields Eye Hospital, and from the comments and criticisms of the house-surgeons with whom I enjoy working.

I thank Dr. Peter Hansell and his staff in the Department of Medical Illustration at the Institute of Ophthalmology for their good work in taking photographs of instruments. Also I am most grateful to Dr. C. W. Graham (late Brigadier Army Medical Service), to Captain T. Savage and Captain J. E. Coates, R.A.M.C., and Sergeant Arthur and Corporal McNicol for many of the photographs of war wounds shown in Chapter III.

Professor Franceschetti, Professor Marc Amsler, Dr. José Barraquer, Dr. G. H. Anthony, Mr. J. Foster, Dr. D. M. Maurice, Mr. A. Stanworth, Mr. L. Fison, and Mr. J. C. Mustardé have kindly lent me some photographs of instruments.

I thank Messrs. Theodore Hamblin Ltd., Down Bros. and Mayer & Phelps Ltd., John Weiss & Son Ltd., Davis Keeler Ltd., H. K. Lewis & Co. Ltd., and Charles Thackray Ltd., for the loan of blocks and electros of certain optical and surgical instruments.

Once more I am most grateful to Mr. R. R. James, late editor of the *British Journal of Ophthalmology* and the *Transactions of the Ophthalmological Society of the United Kingdom*, for his characteristic care in correcting the proofs and for the sound advice on literary matters which he has given with such kindness.

I thank John Wright & Sons Ltd. again for their patience and constant courtesy, and for all the help they have given me.

Lastly I thank my wife for her industry and patience in preparing and typing the manuscript. Her kindly criticism has been invaluable and her enthusiasm a constant inspiration to me.

April, 1958

H. B. S.

FOREWORD TO THE FIRST EDITION

RECENT advances in anæsthesia and in the technique of operations have made it desirable that an up-to-date book on ophthalmic operations should be issued. Past monographs and articles on the subject in the more advanced text-books have usually enumerated a large number of alternative methods for performing various operations, often with inadequate critical comment. The present volume differs in that it is a record of the methods adopted by an experienced surgeon.

The author has had unrivalled experience as Curator and member of the Honorary Staff of the Moorfields Eye Hospital, Ophthalmic Surgeon to St. Bartholomew's Hospital, and Ophthalmic Surgeon in the Army during the war. As Curator at Moorfields he attained a good knowledge of the pathological causes of diseases of the eye—the only sound basis for logical treatment.

There is no better training for a young ophthalmic surgeon than prolonged clinical experience in a large ophthalmic hospital, such as the author has had. He thus gains invaluable experience from the often diverse methods used by a number of the most highly qualified practitioners. At their operations he follows the minutest details of their technique, and often sees more of the progress and results of the cases than even the surgeons themselves. He can therefore select for himself the methods which most appeal to him, and the success of his eclecticism depends upon his own judgement and technical ability.

In the present volume Mr. Stallard has described his own procedures and the ideals which he has set before him. *Quot homines, tot sententiæ*—and it is not to be expected that every ophthalmic surgeon will agree with every detail ; but all will agree that the book represents a conscientious endeavour to do the best, and as such must inevitably receive commendation from those most qualified to judge.

Many ophthalmic surgeons, however, are not so fortunately situated as to be able to adopt every detail advocated. Only in the most favourable circumstances are they provided with such expert assistants and nurses, and so complete an armamentarium. None the less they should study to attain the high ideals presented to them, and so modify their procedures as least to suffer from their own disadvantages.

August, 1946

J. HERBERT PARSONS

“ You young men, doctors and scientists of the future, do not let yourselves be tainted by a deprecating and barren scepticism ; do not let yourselves be discouraged by the sadness of certain hours which pass over nations. Live in the serene peace of laboratories and libraries. Say to yourselves first : What have I done for my instruction ? And as you gradually advance : What have I done for my country ?—until the time comes when you may have the immense happiness of thinking that you have contributed in some way to the progress and good of humanity.”

Louis Pasteur.

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EYE SURGERY

CHAPTER I

INTRODUCTORY

THE EYE SURGEON

"Thou must be like a promontory into the sea, against which, though the waves beat continually, yet it both itself stands, and about it are those swelling waves stilled and quieted."—MARCUS AURELIUS.

THE qualities of mind and hand necessary to make a good eye surgeon are fundamentally the same as those for the general surgeon. It is very desirable that he should be constantly calm, imperturbable, and patient in all circumstances. Loss of control and the absence of the mental robustness required to stand up to the shock of sudden crisis during the conduct of an operation may lead to disaster. Patience is especially necessary to gain the confidence of a patient during operation under a local anæsthetic and for successful surgical attention in retinal detachment. Haste and impatience often lead to loss of the patient's co-operation. The surgeon must have in his character the qualities of a commander so that he is able to maintain in the operating theatre and wards a high standard of discipline and team work. He must be quite clear about his operative intentions, the difficulties and complications he is likely to encounter in any particular case, and the means by which he proposes to deal with these. Unless care is taken in this matter the smooth conduct of an operation may be broken and hesitation prove fatal to the result. Nothing must be left to chance. Resourcefulness in eye surgery generally belongs to pre-operative planning and should seldom become a sudden necessity during operation. Appropriate action in the adversity of post-operative complications must be taken without hesitation or temporizing, for by indecision, delay, and wishful hoping, a situation, often at first remediable by prompt surgical action, may become irremediable. The surgeon's judgement must be soundly based on thorough clinical and pathological training. Judgement is also the product of wide professional and general experience, of deliberation about the reasons for past successes and disasters, and to some extent personal intuition plays a part. Good judgement is an individual quality which is more hardly gained by some surgeons than others. It should improve with maturity.

It is essential for the eye surgeon to have perfect vision and it is also very desirable for him to have good binocular vision. His hands must be steady. If he is not naturally ambidexterous this may be cultivated by

practice. The dissection of anatomical specimens with the less trained hand (generally the left), cutting hairs on the opposite forearm individually with scissors, and removing small foreign bodies impacted in the cornea of a dead animal's eye afford useful exercises for this purpose. Ambidexterity or the ability to do similar surgical manœuvres with either hand is, however, not essential. Some instruments are used better in one hand than the other. The surgeon must adopt the technique which he feels in his hands is the safest and the best for his patient. Some operators prefer to use always the right hand for making a section in the extraction of a cataract, standing in front of the patient when the operation is on the left eye.

Every manipulation during operation must be purposeful, accurate, precise, and finished. There must be no unnecessary 'touching-up'. The less done the better. Absolute attention to technical detail is essential. The margin between success and disaster in eye surgery is so small.

The training of the eye surgeon must be founded on wide clinical experience, and it is essential that he should have a sound knowledge of anatomy, histology, and ocular pathology, the latter acquired by the study of a considerable amount of laboratory material. It is very desirable that he should serve as a house surgeon (intern) and assistant to a well-recognized surgical 'master', and that he should enrich this experience by watching other surgeons in his own country and by travelling abroad to see work in other clinics. From such visits some useful technical details may be culled. In many crafts there are small points in the craftsman's technique which bear an individual quality, and such is also the case in surgery. When the young surgeon has thoroughly mastered the fundamental principles he may build up by trial, elimination, and acceptance his own technical practices which by experience he has found purposeful and useful. It is of great value to keep a surgical diary in which to make the most honest and searching comments about the conduct of operations, criticizing with particular care the failures, setting out reasons for these and suggestions for prevention should such circumstances occur again. It is also helpful to have the valued opinion of a colleague. Even in eye surgery the onlooker sometimes sees more of the game.

A specialist in any branch of medicine may find himself becoming isolated and detached from the main body with which it is his duty to keep contact. A number of advances in pathology and therapeutics have originated in some other department of medicine and have had some practical application to ophthalmology. So the eye surgeon must keep abreast of advances in general medicine and surgery. Sulphonamide, antibiotic, and cortisone therapy and the treatment of burns are examples of the need for this. He must watch the plastic surgeon at work. Such work in the eyelids and orbit is the legitimate field of the eye surgeon provided he has the aptitude for it. As some ocular problems or complications may coexist in such cases, it is I think desirable that the eye surgeon who is competent to do this work should have absolute control.

It is also desirable for the eye surgeon to interest himself in neurology, neurosurgery, and nasal surgery. These are boundary zones where surgical work overlaps and it is necessary to have co-operation. A knowledge of the work of other surgeons in these regions is of great importance in the proper management of a case and any complications which may arise. The eye surgeon must be capable of dealing in a conservative manner with any nasal sinus complication which he may come upon unexpectedly in the surgery of the lacrimal sac or in dealing with an orbital abscess. In war surgery, when the services of the neurosurgeon are not available, he must be prepared to close defects in the dura mater by a fascia lata graft, and also to do any conservative plastic surgical work on the face necessary to lay as satisfactory a foundation as possible for the work of the plastic surgeon.

The selection of instruments and materials is a matter of constant trial. As a general principle it is best that these should be few and simple, well tried, and maintained in perfect condition. With experience certain types and individual modifications of design are preferred. Standard patterns are not necessarily appreciated any more than some such tools would be acceptable to the expert carpenter, and so it is proper to indulge some personal fancy in this matter.

Training in operative work must be graduated. It is well to begin with extra-ocular operations such as excision of the eye, dacryocystectomy, removal of corneal foreign bodies, minor surgery of the conjunctiva and eyelids, injection of local anæsthetic, and strabismus. Then after adequate experience to proceed to paracentesis of the anterior chamber, iridectomy, division of synechiæ, surgical repair of traumatic iris prolapse. Glaucoma operations, cataract extraction, retinal detachment surgery, dacryocystorhinostomy, electromagnet extraction of an intra-ocular foreign body, plastic work, and surgical operations on the orbit should be left until the technique of the simpler operations has been mastered. It is the responsibility of the teaching surgeon to be with his pupil when the latter operates and to continue to do so until he is proficient. It is neither fair to the patient nor to the beginner to leave him to operate alone.

THE ASSISTANT

In eye surgery, perhaps more than in any other branch, the character and quality of an assistant matter considerably. There is little for him to do in most eye operations compared with general surgery, but it is the manner in which he does this and his behaviour that are so important to the smooth conduct of an eye operation, the morale of the patient, and the discipline of the operating theatre staff. He must have a sound knowledge of technique, in particular that of the surgeon he is assisting. He must anticipate every step in the operation and be ready to hand the surgeon the necessary instruments without delay. It should be unnecessary for the surgeon to speak to him during the operation unless some change of plan has to be undertaken. He must do whatever is essential

and nothing more. There must be neither unnecessary interference nor any attempt to perform outside the province of his duties. He must keep out of the surgeon's way, remain still and quiet, and be patient. Loyalty, tact, and pleasant manners contribute much towards creating a sound team spirit and making a happy relationship based on trust and confidence. Such an assistant relieves the surgeon of much anxiety.

The insubordinate, noisy, restless, impatient, interfering, and disloyal type is best dispensed with straight away, for such upset everyone in the theatre.

In many eye operations a well-trained sister or staff nurse does all that is necessary adequately and well. In operations such as retinal detachment, cataract, plastic work, and dacryocystorhinostomy her presence as an extra assistant in charge of instruments is valuable for the conservation of time and the maintenance of order among the instruments. The same qualities laid down above for an assistant also apply to her.

ADMINISTRATION OF THE OPERATING THEATRE

1. The Staff.—The surgeon must impress upon the staff and all subordinates associated with the operation the fact that their contribution is of great importance to the success of the operation and make them appreciate the responsibility of the tasks they do, even if this is just lifting the patient from the table to a trolley. The power to impress subordinates, to make them realize their share of responsibility and the importance of carrying out the simplest duty conscientiously and well, is the essence of leadership. The success of a surgical team rests, as in other things in life, with its leader. A spirit of willing co-operation within a framework of strict surgical discipline produces the necessary efficiency, understanding, and happiness so essential for doing good work.

It is desirable that numerically the staff should be as small as is compatible with efficiency. A specially trained theatre sister, a nurse, and a reliable, intelligent, and clean type of man to act as a theatre orderly are generally sufficient. Supernumeraries are required for cleaning the theatre, for transferring the patient from the table to a trolley, but these latter are never in the theatre during an operation. The theatre staff must know each other's duties and be prepared to interchange these should circumstances, such as illness, necessitate this.

The sister's duties are to supervise the work of the other two subordinates ; to take care of the maintenance of instruments, the sterilization of operating materials, drop-bottles, and instruments ; the cleaning of the theatre ; to effect liaison between the theatre and the wards ; and to keep a record book of all operations. At some operations she must act as an assistant and hand instruments to the surgeon. The nurse assists the patient, holds or adjusts a hand-lamp if required to do so, removes soiled instruments for cleaning, summons the trolley bearers at the end of operation, and understudies the sister and theatre orderly. The theatre orderly is trained to select the instruments which the surgeon requires. He is

responsible for their sterilization, and under the sister's direction for placing them on the instrument trolley in the order desired by the surgeon. He collects the instruments at the end of operation and attends to their cleaning, storage, and maintenance (*see* INSTRUMENTS, p. 15). He must acquire a sound mechanical knowledge of the giant electromagnet, the surgical diathermy apparatus, electrolysis, electrocautery, and the lights used to illuminate the field of operation. These he must test constantly and be responsible for maintaining their efficiency. He is well drilled in surgical asepsis. This staff must work well together.

2. Discipline.—A high standard of discipline is necessary for the safe conduct of an eye operation. Sterilization of instruments and materials must be meticulous. The slightest infection of an eye is frequently disastrous to vision. There should be no talking in the theatre except a few necessary directions from the surgeon and these are uttered into a fine woven lint mask in which is a layer of cellophane. There must be no noise or hurried action in the theatre; indeed, silence has many merits during an operation. Immediately the operation starts, no movement liable to disturb the patient or the operator is made by any of the theatre staff. The doors of the theatre are closed and locked during the operation. When the dressings have been applied the nurse summons the porters. They are clad in clean linen suits and wear caps and masks. They enter the theatre quietly, and with great care transfer the patient from the operating table to a trolley and thence to his bed in the ward.

3. Visitors and Students.—The ideal is to have no one in the theatre other than the staff. The best arrangement for watching an eye operation is through a glass dome set over the operating table. Around this seats are set and the operation is watched through binoculars. An alternative to this is a system of mirrors placed over the head of the operating table. The reflection is projected into a room outside the theatre from which visitors and students may watch the operation.

If neither of these devices is available a mobile stand on the theatre floor is useful. However, from this it is not easy for all the spectators to see every step in the operation. It is undesirable for visitors and students to crowd round the operator and his assistants as there is a risk of making contact with their elbows and of contaminating the instruments. Talking is not allowed during operation. These difficulties limit the teaching of eye surgery to a few at a time when optical devices such as those described above are not available. The assistant is in the best position for learning.

Coloured cine-films are of instructional value in showing the main principles of surgical technique and the steps of operations, but they do not convey a correct sense of proportion and touch. They are particularly useful for the instruction of a large class. It is likely that television may meet the needs of teaching eye surgery to a number of students.

4. Lay-out and Equipment of the Theatre.—*Fig. 1* is a plan of the lay-out of an operating theatre suite. It is not drawn to scale nor is it claimed to be architecturally perfect for the purpose of eye surgery. It