Lectures

ON

OPERATIVE OPHTHALMIC SURGERY.

Delivered at St. George's Hospital.

By ROBERT BRUDENELL CARTER, F.R.C.S.,

OPHTHALMIC SURGEON TO THE HOSPITAL, AND SURGEON TO THE
ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.

LECTURE I.—PART II.

You see here, gentlemen, a contrivance intended to facilitate the acquirement of dexterity. It is a mask representing the human face, and set upon a jointed pedestal capable of being fixed at any angle, so as to render the plane of the face vertical, horizontal, or inclined. Behind holes corresponding to the orbital openings there are spring clips, capable of holding artificial eyes or the eyes of animals, and fixed to spiral springs, so that the inserted eyes obtain somewhat of the natural mobility. By the aid of this mask I shall be able to demonstrate many of the points to which I have to call your attention, and upon it you will be able to practise operating at your leisure.

Before the mask is used there is, however, a great deal to be accomplished by the aid of simpler means. I once met with some very good instructions for persons wishing to learn the use of the sewing machine; and the writer laid great stress upon the necessity of acquiring complete mastery of the treadle before the manual part of the work was even commenced. He asserted the sound principle that the power to accomplish a complex mechanical procedure should be obtained piecemeal; the eventual combination of different movements being far more easy than their simultaneous acquisition. On this principle, the first thing to be done, as a preliminary to operations upon the eye, is the practice of equal and consentaneous movements of both hands. Free drawing with both hands at once is perhaps the best exercise for the purpose. The paper should be placed on a desk, conveniently sloping so as to support the hands, and then two similar curves should be drawn simultaneously, so as to meet in, or to proceed from, the same point. Two pencils should at first be used, and it will be found that several difficulties have to be overcome. The left hand will lag behind the right, and will move with less freedom, so as to form a smaller curve, and to form it more slowly. When simultaneous and similar movement is at last obtained, there will still be differences in the amount of pressure exerted; and these differences may be rendered visible by substituting pens for pencils, so that the degree of pressure will determine the thickness of the line. To such exercises as these, many of the otherwise wasted intervals of leisure may be profitably devoted, and with the result that in no long time the two hands will be combined by the volition and intelligence into one machine, made up, indeed, of essentially independent parts, but still capable of equal and harmonious action. It may safely be laid down that the superiority of the right hand over the left, for the purposes of fine manipulation, is almost entirely due to the cultivation of the muscles of the former by the practice of writing and drawing; and drawing with the left hand may be cultivated indefinitely, and with much surgical advantage.*

There is one instrument only which requires, when used by the left hand, a special form of manipulation. Ordinary scissors are so made that the natural opponency of the right thumb and medius brings their edges into apposition, while the left thumb and medius tend rather to separate them. When taken in the left hand, the thumb should pass through the upper loop, and the ring finger through

the lower, as shown in the subjoined illustration (Fig. 1). The medius should rest in front of the lower loop, and in firm contact with it, and the point of the index against

FIG. 1.

the lower blade, a little in front of the joint, and should there make pressure. Thus held, scissors will cut to the points as well in the left hand as in the right. For excising a portion of the iris, it is generally possible to use the right hand for scissors with either eye; but for strabismus operations on the left eye, and for removing skin from the left eyelids, the mastery of scissors with the left hand, if not essential, is at least conducive to neatness and despatch. In a subsequent lecture I shall have to show you some new scissors, recently patented by Messrs. Weiss, which are equally convenient for either hand.

When the hands have become accustomed to work together, and with equal speed and force, by means of the drawing exercises, the mask may next be taken into use. At first the orbital hollows may be left vacant, while the learner practises holding the knives and needles required. The instrument should be held like a pen, in the thumb and first two fingers, while the remaining fingers and a portion of the ulnar margin of the hand rest upon the brow; and the position should be such that the fulcrum need never be shifted, and that all necessary movements may be performed by the simple flexion or extension of the grasping fingers. In this way the operator should be able to touch either the temporal or nasal margin of the orbital opening; and to execute any sawing movement within these limits. Next, the orbital hollows may be filled with something to represent eyes. Small wooden balls, covered with white leather, on which a circle is drawn to represent the corneal margin, are very convenient to begin with. The leather covering may be seized by fixation forceps, and the operator may proceed to mark the corneal margin by minute dots placed at close and regular intervals. If he use a fine pen, he will produce a permanent record of his power to place the point of an instrument precisely upon a selected spot; and he may next proceed to connect two dots together by a drawn line. After a while hollow balls of soft india-rubber may be substituted for the wooden ones, marked in a similar manner, and used to practise the art of puncturing or incising the eyeball with the proper degree of force, and in any required direction. The eyes of recently killed animals will come next in order, and upon them all the steps of the principal operations may be performed. The best eyes are those of pigs, cats, and rabbits; the two latter being especially well adapted for operations upon the iris. The animals should be killed by some means that does not produce extreme dilatation of the pupil.

It has been well said, gentlemen, that what common people call genius is little more than a great capacity for taking trouble. I have recommended you to take a great deal of trouble in order thoroughly to accustom yourselves to the manipulations of ophthalmic surgery; and if you follow my advice I am sure you will find the time well spent. You will come to the real work as skilful craftsmen, and not as awkward and blundering novices. It has more than once been my lot to see attempts to operate upon the human eye, upon the eye of a trusting patient, by a person who did not know how to handle the implements he was

* It is not generally known that the difficulty of writing with the left hand depends almost entirely on the direction of the movement from left to right, and on the customary slope of the letters. It is perfectly easy to write with the left hand the reverse way—i.e., to execute with the left hand a movement analogous to that which we constantly execute with the right. Any person who is temporarily deprived of the right hand may conduct correspondence by writing with a style with the left hand, the reverse way, on thin paper, with carbonic paper underneath. The sheet must then be turned over to be read, and the words will run in the ordinary fashion.

about to misuse; and I can conceive few things more painful than such a spectacle, unless it be the reflections suggested by the inevitable consequences of the so-called operation. Let me remind you, moreover, that the results of your early eye operations will have a very marked effect upon your future success, either as general practitioners or as specialists. If circumstances should lead you into rural districts, and you find there, as you well may, old people whom you are able to cure of blindness by the extraction of cataract, your work will command immediate and wondering appreciation, while if you condemn these same old people only to pain and disappointment, you will be inevitably and most deservedly distrusted. If your lot in life should be to undertake hospital duty, the early possession of manual dexterity, and of the well-founded self-reliance that it entails, will be the surest passport to the confidence of your colleagues and *confrères*.

I pass next to the consideration of instruments, of which, as I have said, there exists an almost bewildering variety. I think it is Charrière, of Paris, who has formed a sort of museum of forgotten eye instruments, and I am afraid to say how many specimens it contains. But the instruments now living, so to speak, and familiar to us, may be divided into two great classes: the essential, which are the representatives of inventive ingenuity, and the superfluous, which are the representatives of inventive awkwardness. The former class are contrived by good mechanics, the latter by bad surgeons. There are certain things for which the fingers cannot be spared, or which they cannot do, and for these things instruments are essential. The fingers cannot be spared to hold open the eyelids; and, therefore, as the fingers of an assistant would be in the way, specula are essential. The fingers cannot fix the eyeball without exerting dangerous pressure, and therefore fixation forceps are essential. The uses of iris forceps, of hooks, of scissors, of cutting blades of different sizes and shapes, require no demonstration; and all these must be adapted to the work that they are required to perform. But in all ages and countries it is the bad workman who complains of his tools, and it is the good workman who produces the most varied results by the most simple means. A man who is very awkward, and whose awkwardness is perpetually bringing him to grief, hits upon a contrivance by which he hopes that that natural result may in some degree be obviated. He calls this contrivance an invention; and, like those persons of whom the Apostle tells us that they glory in their shame, he is often not a little proud of it. I have lately seen a description and drawing of a curiously deformed strabismus hook; with a claim that the deformity would cause it to hold the tendon securely, and without slipping. The inventor had not learned how to hold a common strabismus hook, or he would never have felt the need for his new fangle. Many surgeons of great and deserved repute have invented each a single instrument, such as Beer's knife or Tyrrel's hook; and some have invented more than one, chiefly because they have struck out some new procedure, for which new appliances were indispensable. But, as a rule, the invention of instruments by a surgeon is an irrefragable proof of his clumsiness; and when you find that any single operator has his peculiar scissors, and his peculiar hook, and his peculiar forceps, and his peculiar scoop, all called after his name, the best advice I can give you is to take care that he is never asked to operate upon your own eyes, or upon the eyes of any in whom you feel a personal or especial interest. Go rather to the man who has never invented an instrument in his life, but whose daily practice affords proof that he can use those invented for him by others.

In this introductory or general lecture, only the instruments common to nearly all operations, the specula and the fixation forceps, need to be described. The others will find their place when I have to speak of their respective uses. The speculum should possess two essential qualities. It

exert injurious pressure, and it should be perfectly out of the way of the operator. I only know one form of instrument in which these desiderata are combined; and that, which is shown in the annexed woodcut (Fig. 2), is the invention of Mr. Foveaux, of the firm of Weiss and Sons. Its cross bar and screw-stop are too near the eye to allow of the parts in front of them being bent or closed by muscular exertion, and the curve removes the bar quite out of the way of the handles of instruments. The speculum is reversible, and may be used for either eye. It must be in-

FIG. 2.

troduced gently, when nearly closed, and must then be opened so as to put the lids fully upon the stretch, and to carry them away from the eyeball towards the margins of the orbit. It is next fixed by a turn of the screw, and, when released prior to removal, it must be prevented from closing suddenly.

Fixation forceps are of two kinds: those which seize the conjunctiva and subconjunctival tissue, and those which penetrate the sclerotic. The former present a blunt extremity when closed, and one blade has two little teeth, which are received between three corresponding teeth of the other. The figure (3) shows the entire instrument, and the points, both open and closed, in somewhat larger size. Such forceps hold well in young and healthy eyes.

FIG. 3.

But in the aged, and after prolonged inflammation, the conjunctival tissues often tear with extreme readiness, and the forceps not only produce troublesome lacerations, but may lose their hold at a critical time of the operation. To meet this difficulty the perforating forceps were contrived, at about the same time, by Mr. Bader, of Guy's Hospital, and by M. David, of Angers. Each blade terminates in a single fine sharp point, and the two points cross to the extent of a line, as shown in Fig. 4. In use, the forceps are closed until

FIG. 4.

should hold the lids quite away from contact with the eyeball, so that no spasmodic action of the orbicularis can | the points are about a line apart. These points are then placed on the sclerotic, immediately external to the corneal

margin, and are driven in and closed by a simultaneous movement. They then hold the eye with a grasp which never gives way. They seldom perforate the anterior chamber; but their doing so would be quite unimportant, as they fill their own punctures until they are removed. I have never seen these punctures become the seat of any irritation, or give the smallest subsequent trouble, and my own practice is always to use the perforating forceps in order to incise the eyeball, but to lay them aside for the others in the subsequent steps of an operation; on the ground that the pressure required to give them their hold might do mischief, by starting the lens or vitreous body, when once the support of the aqueous humour was withdrawn. I have seen surgeons attempt to use these forceps by pinching up a fold of conjunctiva between their points; but in this way their action is very unsatisfactory, and I quote the example rather for avoidance than for imitation. The conjunctival fixation forceps may also be used in a right way and in a wrong. They should be held directed towards the centre of the eyeball, placed, a little open, upon the conjunctiva near the cornea, and closed while making gentle pressure upon the globe. They will in this way lift up a fold which contains not only the delicate conjunctiva, but also the tougher subjacent tissue; and the extremity of the closed forceps should be kept in gentle contact with the globe while traction is being made. If only a fold of conjunctiva is pinched up, and if that fold is lifted off the sclerotic, the membrane will probably tear, and the position of the eyeball will be very insufficiently controlled.

In my next lecture I shall first discuss the employment of anæsthetics in ophthalmic surgery; and shall then proceed to the consideration of the operations for cataract.

NOTES OF VISITS TO FOREIGN BATHS.

By JOHN MACPHERSON, M.A., M.D.

III.—WESTPHALIA.

Few things have surprised me more than the popularity of Lippspringe—no doubt only for a special class of patients. The village, a sort of improved country *dorf*, lies in an open plain. There are very fair lodging-houses, and a large Kurhaus Hotel, bathing cabinets, and a piece of ground nicely enough laid out with trees; but the whole country round is flat, uninteresting, and without shade. Yet more than fifteen hundred *poitrinaires*, as the French call them, come here every summer, and they have no fewer than eight doctors to look after them. The temperature of the water is 70°, and it contains about seven grains of salts of lime and about as much of salts of soda; there is also a good deal of nitrogen gas present. The inhalation of that gas is one of the specialities of Lippspringe; but whether it is in any respect more efficacious than the inhalation of ordinary moist air, seems doubtful. The inhalation is managed by making the water fall on a cone of twigs of thorn, which mechanically divides it, much after the fashion of the faggots of the *gradir häuser*; and round these the patients sit.

According to Dr. Rohden, the cases that have benefited here have been simple pulmonary catarrhs, with or without much hæmoptysis, which probably indicated phthisis. These after a longer or shorter time were quieted, and the cure carried out by life in the open air and in the mountains. Caseous deposits after chronic or acute catarrhal pneumonia were sometimes treated, with good results. Still more successful was the treatment of old pleuritic exudations, if they were not very old. Various cases of capillary bronchitis that had resisted very different modes of treatment were cured in a wonderfully short time. Others have written more confidently of the effects of the *lungen gymnastick* of inhalation, and have considered that in cases in which tuberculosis had not made any great progress the capacity of the lungs was increased from fifty to seventy inches by the use of the cure for some weeks; even in advanced cases with cavities advantageous results have been found. The waters are used for drinking, for bathing, and for inhalation. In

former times the Lippspringe waters were mostly used in baths; now they are more frequently employed for inhalation. I had a conversation with Dr. Rohden, who seemed a very sensible and intelligent man. He did not talk of extravagant success, but said it was an undoubted fact that the sort of cases enumerated above did improve wonderfully; and he attributed the result to the soft and somewhat moist air of Lippspringe, the quiet of the life there, its good arrangements, and the unfailing attention of the doctors. Dr. Rohden has observed very carefully the effects of meteorological changes on his patients, and he thinks that he has traced a connexion between attacks of hæmoptysis and a fall of the barometer coinciding with suddenly increased amount of moisture in the atmosphere. Perhaps the influence of meteorological conditions on disease—a subject still very partially investigated—is most strikingly illustrated by the increased mortality of delirium tremens in very hot weather, which I believe I was the first to point out. The visitors of Lippspringe were evidently no *malades imaginaires*, and many of them had their disease stamped on their countenances. Lippspringe is about five miles from Paderborn, on the railway. This place boasts of its Inselbad, essentially the same and used for the same purposes as Lippspringe. I had not time to visit it, nor a very favourite quiet bath in this district in a very pretty neighbourhood—Meinberg, with its three sulphur springs and one iron well.

If there be difficulty in ascertaining to what the good effects obtained at a place like Lippspringe are to be attributed, there is none in assigning a cause for the popularity of the next two places which I visited—Driburg and Pyrmon, namely, plenty of iron and carbonic acid, and an agreeable neighbourhood.

Driburg is a short way from Paderborn by railway. It lies in a pretty open valley, with nicely wooded hills in the neighbourhood; it has good shady avenues, and a park very prettily laid out. The lodgings in the kurhaus are roomy, and the arrangements much better than I had expected, as I was told that I should find them very rough. In the centre building is the drinking well; in the left the water is heated for bathing; and to the right are mud baths. The waters are quite sufficiently strong of iron, having nearly 6 of a grain in the 16 oz. They have a sufficient supply of carbonic acid; but they have more earthy salts than are wanted—nearly 15 grs. of carbonate, and 10 grs. of sulphate, of lime. They have also nearly 8 grs. of sulphate of soda, and nearly 5 grs. of sulphate of magnesia. It is therefore not surprising that the waters are not so pleasant to the taste nor so well borne by the stomach as those of Schwalbach. They are not, however, exactly unpleasant. They are very slightly aperient. I need not enter into the cases for which such waters are best fitted; suffice it to say that, as in all steel baths, the greatest number of the patients appeared to be ladies. They have their favourite steel baths—i.e., baths of carbonated water—here as at more fashionable chalybeate spas.

I went on by rail from Driburg to Huxter, and then went by coach in about four hours to Pyrmon, which is most conveniently reached in this way, although it is hoped that the railway to it, long in progress, may be soon finished.

Pyrmon was long one of the chief baths of Europe frequented by princes and crowned heads; and it retains its ancient glory of appearance, for I know no baths with such a magnificent avenue, or so beautiful a park, or with such fine timber. It has an immense number of chalybeates, many of which are shut up. The two principal ones for drinking are the Trinkbrunnen and the Helenen. The first contains 42 gr. of carbonate of iron. It has about 18 grs. of solid constituents, or about 7 grs. more than the Weinbrunnen at Schwalbach; but of these, 4 grs. are sulphate of magnesia, which helps to make the water faintly laxative. The Weinbrunnen is pleasant to the taste; but the Helenen is perfectly delicious. It contains 2 gr. of iron, about as much as the strongest well at St. Moritz, and is therefore well adapted for cases in which it is not desirable to commence with the stronger springs. The bathing arrangements are admirable. There is such an enormous supply of gas and water that the baths are much larger here than at Schwalbach, just as they are larger at Schwalbach than at St. Moritz. There are all the fitting arrangements for uterine douches and for local applications. Pyrmon also boasts of salt springs for bathing, and an excellent one for drinking,