Dr. F. M. R. Walshe :—"So I believe," he says, "that while technical methods of investigation and experimental studies have now to be included in the essentials of a complete neurologic training, clinical observation remains the foundation of neurologic medicine and on it all else must be built. Only the adequately trained clinical observer can evaluate the relationship of the results of laboratory and other technical methods of investigation to the symptoms of disease presented by the individual patient, for it is the individual that is the material of our study, be it remembered, and not an abstract thing called 'disease.'"

The importance of the training and acumen of the observer is admirably expressed in the words of your great authority on medical education, A. Flexner. He writes, "There is a widespread impression that the scientific quality of medical education and practice is in some fashion dependent upon the part played by the laboratory. This is not the case. Science is essentially a matter of observation, inference, verification and generalization. Not only is the part played by the active senses the essential criterion of science; one may go further, the vast and complicated paraphernalia of science are merely means of extending their scope."

I have no hesitation in stating that in my opinion clinical medicine is better taught, and therefore better practised, in England and the United States than in any other part of the world; and this is largely, if not chiefly, due to the fact that British and American students have not only freer access to the hospital patient than in other countries, but are compelled by careful note-taking themselves to investigate the signs and symptoms of disease and to exercise their own wits in arriving at a plausible diagnosis.

INTRACAPSULAR CATARACT EXTRACTION*

BY

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THE problem of intracapsular cataract extraction is not a new one. There is a considerable amount of literature on the subject, much of which is controversial; thus Appleman¹, in discussing a first series of 100 cases, regards the method as being an ideal procedure; de Grosz² reminds us that the further results of intracapsular removal must be followed up for many more years and

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Duke-Elder³, writes that before a considered opinion can be given, more extensive and accurate information is certainly required as to the end results.

My own interest was stimulated by the work of Dr. A. H. H. Sinclair⁴, published in the *Transactions*. Briefly, his method consists of extraction of the lens in capsule by "tumbling," i.e., by grasping the anterior capsule below and extracting by delivering the lower pole first, necessitating a dislocation of the upper pole backwards. I would emphasize that the results about to be described are based in principle upon Sinclair's method, modified only in minor details.

The series about to be discussed consists of 100 consecutive cases of which 43 were mature and 57 immature. Included in these are three adult zonular cases. Two cases of congenital dislocation of the lens have been purposely excluded, because neither was typical of the method practised; both, however, obtained normal visual acuity after intracapsular removal of the lens, a result very much at variance with the views expressed by de Grosz².

A very full description of intracapsular technique is given in Sinclair's paper and I propose to deal here only with certain aspects of the problem as they have presented themselves to me during the course of the last two years.

Local Anaesthesia and Akinesia.—The modifications that have been found of value are :—

- (a) Retro-ocular injection should be given 20 minutes before operation. There is no doubt that this causes reduction in tension and thereby lessens the risk of vitreous prolapse. In cases 1-58 the lens was removed immediately after injection, and the remainder after allowing time for the globe to soften. I have no hesitation, after contrasting the two methods in advising that preliminary reduction in tension is much safer. This experience confirms the views put forward by Elschnig, but is in direct opposition to those held by Knapp⁵ who regards preliminary softening as unnecessary.
- (b) At the time when the lids are injected, two small sub-cutaneous areas at the junction of the middle and inner, and middle and outer thirds of the margin of the upper lid are anaesthetised, in order that the retraction sutures may be inserted painlessly.

Lid Retraction.—No speculum or lid elevator is used for purposes of lid retraction. Two sutures are inserted just above the margin of the upper lid and one just below the margin of the lower lid and to these Spencer-Wells are attached. When the sutures are fully stretched the weight of the forceps is sufficient to give a wide palpebral aperture without pressure on the globe.

Corneal Section.—The section must be large. In a certain number of cases the lens can be extracted through a small section, but the size of the lens varies enormously and a large lens with a small section leads to rupture of the capsule as the lens is being delivered. Provided the globe is softened, the section is best made completely with a Graefe knife, and not enlarged with scissors; but where the globe is not softened, there is danger of dislocating the lens if a very large section is made with the knife. A small conjunctival flap is essential.

Extraction.—In order to tumble the lens satisfactorily, the anterior capsule must be grasped well down as near the level of the pupillary margin below as possible. There does not appear to be any single pair of capsule forceps which will suit everyone. Sinclair's cross action ones appear too large and Messrs. Weiss and Sons have made to my order a pair embodying the following features :—

- (a) Small in size and light in weight.
- (b) " Splayed out " at the terminal points in order to push the margin of the iris below in front of them.
- (c) Gripping surfaces modelled on Sinclair's pattern.
- (d) Cross bars along the shaft, in order to prevent apposition except actually of the gripping surfaces, so that there is no risk of grasping the iris above.

Once the capsule is grasped, it is essential not to hurry. The lens must be rocked gently, and once it is dislocated below, the guard must be brought into action, and more and more pressure exerted on the globe below, until at the moment of delivery the capsule forceps is merely guiding the lens through the wound. Difficulty in delivering always occurs if there is haemorrhage into the wound, and, apart from washing out the anterior chamber prior to grasping the capsule, an effort should be made to obtain haemostasis of the wound edges. This can be aided by instilling a few drops of adrenalin on the wound, prior to washing out. Immediately after extraction the lid sutures should be slackened.

Toilet.—In a certain number of cases, even after reducing the tension, the vitreous tends to bulge and when this occurs gentle pressure should be applied to the globe with the lids closed for 1-2 minutes. If this is done, the wound becomes flat, and a toilet can then be effected. The lids are kept closed by bringing the sutures from the upper lid down on to the cheek, and holding them with strapping for 24 hours. A vaseline dressing is unnecessary.

Iridectomy.—The problem of the type of iridectomy to be performed is a very difficult one. I think peripheral iridectomy is

correct; this is what I did in cases 1-53, but in this number there were 5 cases of low iritis, 3 cases of prolapse and 8 cases of ultimate eccentric pupil. In order to try and prevent the latter, some of the cases were kept on pilocarpine for 48 hours after operation and it was chiefly in these that the iritis developed. With full iridectomy there were 2 cases of iritis and 5 of prolapse; in addition with full iridectomy the operation is simpler because the capsule forceps can be introduced more easily. In so far as the section must be large, the risk of prolapse is great; the ultimate ideal solution is peripheral iridectomy combined with a satisfactory method of closing the wound firmly at once. A conjunctival flap is not enough and superficial corneo-episcleral sutures placed at "10 o'clock" and "2 o'clock" would appear to be a method worthy of trial. American surgeons appear to have been faced with this problem of wound closure⁶.

Statistics.—A very careful investigation of the end results reveals the following facts:—

- (a) *Vision.* 61—6/6 or better.
 15—6/9 or 6/12.
 1—6/18.
 1—Counts fingers.
 2—No P.L. Lost eyes (1 diabetic—old iritis—high myopia. 1 senile; very bad result).
 14—6/12—Counts fingers; high myopes; postr. fundus disease.
 6—6/9-6/36; other eye disease, *e.g.*, old glaucoma—retinitis.

Thus, excluding cases where vision is reduced as the result of other eye disease unrelated to operation, these figures represent:—

6/6 or better	...	...	77 per cent.	} 96 per cent.
6/9—6/12	...	...	19 per cent.	
6/18	...	...	1 per cent.	
Counts fingers	...	...	1 per cent.	
Lost eyes	...	...	2 per cent.	

(b) *Complications.*

Retro-ocular haemorrhage	...	None
Corneal blood staining	...	1
Hyphaema	...	28
Iritis	...	7
Iris prolapse	...	8
Loss of vitreous—at operation	...	4
Loss of vitreous—after operation	...	2
Detached choroid (with recovery)	...	1
Detached retina	...	1
Cyclitis and secondary glaucoma	...	None

Hyphaema.—The incidence of this condition was extraordinarily high—28 as compared with 11 in a similar series reported by Knapp⁷ and in all the severe cases it occurred on the 4th, 5th, or 6th day; its average duration was 13 days. In almost every case there was a history of trauma, but the mild type of trauma which as a rule produces no haemorrhage in extracapsular cases, almost invariably does so in the intracapsular types. It is annoying because it delays convalescence; only in one case was vision interfered with and here corneal blood staining occurred; this was practically absorbed in 6 months' time and the ultimate visual result was 6/12 (the condition arose as the result of using faulty forceps, thereby injuring the posterior surface of the cornea). It is difficult to be sure of the cause of the hyphaema; one explanation is haemorrhage from the wound, which has actually been observed, but a more likely frequent cause seems to be haemorrhage from the ciliary body, as the result of trauma due to traction on the zonule at the time the lens is dislocated.

Loss of Vitreous.—At the time of operation, this occurred four times—one a gross loss entirely due to faulty technique, one a gross loss in a case in which an exactly similar complication had previously occurred during an extracapsular operation on the other eye, in the third case there was only a bead, and in the fourth fluid vitreous presented as soon as the section was made, but in spite of this the lens was grasped and successfully removed in capsule. Two cases of later loss of vitreous occurred, both associated with iris prolapse. In three cases the vitreous was adherent to the posterior capsule, a condition to which Sinclair has already drawn attention.

Astigmatism occurred in practically every case and varied between 1 dioptre and 5.5 dioptres. The average astigmatic error was 2.5 dioptres.

The average duration of stay in hospital was $19\frac{1}{2}$ days.

No figures can adequately represent the true value of this operation. Though the visual results in healthy eyes are excellent, it is in difficult, secondary cases, and in otherwise diseased eyes, that its value is greatest. It is the method of treatment par excellence in cases of high myopia with nuclear cataracts and vision reduced to 6/36 or less with correction. Many of the complications described are avoidable—particularly those of the iris and vitreous—provided finer technique is evolved. Apart from the risk of complications as the result of irritation of cortex and drag of capsule—which we must accept as being present in extracapsular cases—the clear black pupil gives to an aphakic eye a visual recovery that no other method can consistently claim. The absolute safety with which an immature cataract can be removed is remarkable; these cases are, in fact, simpler, for the capsule is

almost invariably stronger and dimples easily under the pressure of the forceps. Instead of a long period of waiting, followed by a preliminary operation, then extraction (as a rule of a lens with sticky cortex which is left behind to cause severe irritation) and often needling, the patient can, by this method, at any reasonable time, subject himself to an operation which holds out every reasonable prospect of recovery of almost perfect vision. Technically, the operation is slightly more complicated and certain cases can be extraordinarily difficult, but there appears to be no reason why a surgeon who is operating regularly cannot undertake intracapsular extraction with every hope of success. My experience does not confirm the views expressed by Duke-Elder; this method of intracapsular extraction is not essentially difficult, skill in the selection of cases is not required, and the operation does not demand a long apprenticeship and a delicacy of technique not readily attained. Doubts have been expressed as to the value of the complicated technique of local anaesthesia and akinesia; after the experience of these and many other cases, I am convinced of its extreme value, not only in the sense of security it gives to the surgeon, but to the patient as well, particularly if it is explained to the latter that he is no longer capable of sudden movement or squeezing.

One doubt only remains in my mind—whether it is good surgery to adopt an operative procedure which, relatively to its size, produces such a gross anatomical alteration of the eye. My own experience is as yet too limited to form a judgment on the point, but all authorities who have practised this operation to any extent, are emphatic that the ultimate end results are excellent—with the possible exception of the Smith method, and here Thomson⁸ was only reporting on 22 cases.

Summary

1. The present paper deals with a series of 100 consecutive intracapsular cataract extraction operations.
2. The results show a final visual acuity, in healthy eyes, of 77 per cent. 6/6 or better, and 19 per cent. 6/9-6/12.
3. The most common single complication is hyphaema—28 per cent.—for which no suitable method of prevention is suggested.
4. Iris prolapse occurred in 8 per cent. and vitreous prolapse in 6 per cent. of cases; suggestions are made with a view to reducing this incidence and at the same time making peripheral iridectomy a safer procedure.
5. Minor points in local anaesthesia are suggested.
6. Superiority of the operation over other methods is claimed, particularly in immature cases.

I wish to express my thanks to Dr. Sinclair, for his kindness in personally demonstrating his operation to me; to my colleagues of the honorary staff of the Manchester Royal Eye Hospital, for permission to operate on many of their cases and to Mr. S. B. Smith, for his assistance in the compilation of the records. Particularly do I wish to thank Dr. T. M. Bride and Dr. H. H. McNabb for their collaboration and helpful criticism of this work.

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A CASE OF PERIVASCULITIS RETINAE ASSOCIATED WITH SYMPTOMS OF CEREBRAL DISEASE

BY

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THE case is one of vascular disease in the retina, with recurrent retinal and vitreous haemorrhage, in a young man; differing from the usual cases of this group in the rapid evolution of the vessel changes, and presenting an interesting but somewhat unusual feature in the occurrence of symptoms pointing to disease of the central nervous system.

The man, whose age was 30 years, was seen on December 2, 1935, complaining of dimness of vision in the left eye. Vision in the right eye was 6/6 and in the left eye 6/24. Ophthalmoscopic examination in the right eye showed some widening of the inferior temporal vein which was constricted by the over-lying artery. Otherwise the fundus was normal. In the left eye there were some haemorrhages in the vitreous. The veins showed, in some parts, parallel sheathing, and elsewhere there were sections accompanied by white lines. There were many retinal haemorrhages. The changes were most marked in peripheral parts of the fundus.

A fortnight later the left eye had a large vitreous haemorrhage, and the right eye showed exudates accompanying and concealing the veins, and some retinal haemorrhages. In this eye the exudate