Knapp. (H.)

REPORT ON A SECOND SERIES OF ONE HUNDRED SUCCESSIVE CATARACT EXTRACTIONS WITHOUT IRIDECTOMY.

BY

H. KNAPP

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By H. KNAPP.

AT the 7th Intern. Ophth. Congress held at Heid., in Aug., 1888, of 250 members, 5 only—Gayet, Schweigger, Wecker, Galezowski, and the present writer—warmly advocated extraction without iridectomy. It seems to me that it is time to base the discussion of this question on experience rather than on argument. Arguments may be strong or weak, but they are no demonstration. I beg leave, therefore, to communicate the result of my recent practice and to draw from it such conclusions as were more forced upon me than sought for.

In the March number of the 17th vol. of the ARCH. OF OPHTH., I published a report of the 1st series of 100 cases of extraction without iridectomy. Intercurrent with these operations were 17 extractions with iridectomy. My present remarks are based on 113 extractions, performed by me from Nov. 16, 1887, to Dec. 29, 1888, among which 100 were without, 13 with, iridectomy, *i. e.*, 1 with, to $7\frac{3}{4}$ without. I shall not speak here of the 13 cases, but may mention that there was neither a failure nor any thing unusual among them.

In the

Technique of the Operation

I desire to point out some changes:

1. In about 20 operations, I replaced Panas' solution for intraocular injection by a $\frac{1}{10000}$ *solution of bichloride of mercury.* When I injected only small quantities of this substance no reaction was noticed, whereas moderate quantities were followed by more or less transient opacity of the

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cornea, affecting the posterior surface in irregular polygonal patches. In the case of a greatly collapsed eye, I injected a larger quantity; — the eye was lost by kerato-irido-choroiditis. Since that time I have abandoned the corrosive sublimate for intraocular injections and used Panas' solution, or more often a 3 per cent. boric acid solution. The liquid injected should be lukewarm, for in many cases the cold produces a sudden movement of the eye.

2. In about 25 cases I have opened the *anterior capsule with the narrow knife on its passage through the ant. chamber.* This is easy when the anterior surface of the lens is convex and the pupil by nature or by cocaine slightly dilated; but when the pupil is narrow, the point of the knife, dipping however superficially into the lens, causes the knife temporarily to change its straightforward direction, and may puncture and raise the opposite border of the iris. The knife has to be withdrawn until the iris is disengaged, and then rapidly passed through the ant. chamber. A correct section in this way is evidently more difficult than when the knife remains in its original plane. In the incident just described, the advantage of the narrow Gräfe knife is demonstrated better than on any other occasion:—collision with the iris and an undesirable counterpuncture can be easily corrected, and thus far I have not yet exsected a piece of iris in opening the capsule in this way. The method, we know, is old, but has of late been revived by Galezowski, Gayet, and others.

3. I want to recommend the *continuance of the upper section*, not only on account of its optical advantages, but also *on account of its offering better chances for preventing prolapse of iris and escape of vitreous.* When the eye looks down forcibly, the section gapes. I make it a rule, therefore, to avoid the downward position during the whole manipulation, but especially during the readjustment of the iris and the washing out of the anterior chamber, lest iris and vitreous fall into the gaping wound. I also caution the patient when he is bandaged not to look down to his feet, but to hold his eyes directed upward, in the natural position of repose during sleep.

Synopsis of the 100 cases operated on without iridectomy. (See pages 4–7.)

Accidents During the Operation:

Three cases of *escape of vitreous.*

1. Case 13. Traumatic cataract. Iris tilted; a portion of it became incarcerated in a corner of the wound, to which the galvano-cautery was applied. Recovery good. S $\frac{20}{200}$.

2. Case 57. An unmanageable patient. Iris reduced; pupil oblong. S $\frac{2}{50}$.

3. Case 84. The escape occurred in a myopic eye while I attempted to press out obstructions of the pupil. Iris reduced; found prolapsed on 4th day; was cut twice; smooth healing. Pupil clear; the capsule crowded aside by the vitreous. With + 11 + 16^{c} h S = $\frac{20}{30}$.

I have been very particular in cleansing the pupillary area; yet, in a few cases, a moderate quantity of REMNANTS was left. In none did this interfere with a smooth recovery, and good sight was obtained in all.

Anomalies of Healing Process.

1. One case of acute *mania,* disappearing in a day, after one eye had been left unbandaged.

2. On the fifth day, in one case, the non-operated eye contracted an intense (*epidemic*) *acute conjunctival catarrh,* with a good deal of discharge. Careful bandaging kept the inflammation from the operated eye.

3. *Death from apoplexy* in one case (No. 32) nine days after a normal extraction and undisturbed recovery.

4. In a case of hypermature cataract (No. 49) in a man of seventy, on the thirteenth day of a smooth recovery, the *nasal half of F became defective.* The defect—caused by an intraocular hemorrhage?—slowly disappeared in the course of three months. S = $\frac{20}{70}$,

5. *Posterior synechiæ* in many cases. All of them were only filiform, and did not materially obstruct the pupillary area, as in the iritides or irido-cyclitides of by-gone years.

6. *Spongy* (fibrinous, gelatinous) *exudation* occurred in two cases (7 and 79). Recovery good.

7. *Pupil slightly oval* in a few cases by iris puckered in the upper part of the sinus of anterior chamber. Sight good.

8. *Incarceration* of iris, *i. e., anterior synechiæ,* in two cases. No disturbance.

No.	Name, Age, Health.	Cataract Eye.	Operation, Healing, Duration of Treatment.	Primary S.	Secondary Operation after Extraction, Healing, Duration of Treatment.	Ultimate S.	Remarks.
1	John McC. 50. Good.	Ripe, complicated.	Nov. 16, 1887. Pupil slightly oval. 15 days.	10/200	Discission 4 weeks. 6 days.	20/40	Floating and diffuse opacities of vitreous.
2	Ida B. 83.	Hypermature, complicated.	Nov. 18th. 14 days.	20/100	Disc. 6 months. 6 days.	20/40	Rarefaction of choroid.
3	Mr. Mur. 70.	Ripe.	Nov. 25th. Restless. Acute mania two days. 16 days. Synechiæ.	20/200	Disc. 17 days. 5 days.	20/200	
4	Ph. Sher. 54.	Ripe.	Nov. 25th. Some synechiæ. 13 days.	20/200			
5	Mrs. V. G. 68.	Ripe.	Nov. 26th. Two filiform synechiæ. 14 days.	15/200	Disc. 16 days. 5 days.	20/70	
6	Hought. 57.	Ripe.	Nov. 27th. 14 days.	20/100			
7	Mrs. Rob. 60.	Ripe, complicated.	Nov. 29th. Spongy exudation. 21 days.	10/200		20/70	Opacities of vitreous.
8	Rey. 30.	Ripe.	Nov. 29th. 20 days.	20/100	Disc. 7 weeks. 8 days.	20/100	
9	Mrs. Bs. 75.	Ripe.	Dec. 1st. 15 dasy.	20/200	Disc. 3 months. 6 days.	20/30	
10	Mrs. H. 57.	Ripe.	Dec. 3d. 17 days.	20/100	Disc. 2 months. 4 days.	20/30	
11	Mrs. B. 59.	Ripe.	Dec. 5th. 15 days.	20/100	Disc. 6 weeks. 12 days.	20/30	
12	Ed. M. 47.	Immature. (Nuclear sclerosis.)	Dec. 5th. 12 days.	20/70	Disc. 13 days. 4 days.	20/30	
13	Meek. 39.	Traumatic.	Dec. 10th. Escape of *vitreous*. Iris tilted back. *Incarceration* in corner burnt off with galvano-cautery. 23 days.	20/200			
14	Od. 40.	Hypermature.	Jan. 3, 1888. Incarceration. 14 days.	20/200			
15	Kittr. 66.	Ripe.	Jan. 4th. 13 days.	20/200	Disc. 26 days. 6 days.	20/30	
16	Frank. 47.	Ripe, complicated.	Jan. 14th. 16 days.	20/100	Disc. 32 days.	20/70	Mac. corneæ. Pupil entirely clear.
17	Miss C. 28.	Traumatic.	Jan. 14th. Remnants. 19 days.	1/8	Disc. 4 weeks. 5 days.	20/30	
18	Wells. 75.	Hypemature.	Jan. 26th. Ant. capsule removed with forceps. *Prolapse* on 4th day; cut on 6th. 23 days.	20/100	Disc. 23 days. 5 days.	20/70	No irritation. Restless patient; gipsy.
19	Hartw. 63.	Ripe.	Jan. 28th. 16 days.	20/70	Disc. 6 weeks. Puncture in cornea yellowish, a thread hanging out of it; cut. Inflammation for 6 weeks. 3 weeks.	20/40	Circumcorneal injection, pain, congestion of iris, vitreous hazy. Finally perfect clearing, sight good, no later discomfort.
20	Wells. 75.	Ripe. Chr. conjunctivitis.	Feb. 10th. 14 days. Swelling of lid. Mucous discharge. Healing good.	20/100	Disc. 3 weeks. 6 days.	20/40	In 6 days.
21	M. Con. 50.	Ripe.	Feb. 11th. 17 days.	20/200	Disc. 4 mos. 5 days.	20/20	In 2 months.
22	M. Cosch. 69.	Ripe.	Feb. 14th. 19 days.	20/200			
23	Cath G. 50.	Hypermat.	Feb. 17th. 14 days.	20/200	Disc. 7 weeks. 5 days.	20/30	In 3 weeks.
24	Mrs. Sh. 64.	Ripe.	Feb. 17th. 18 days.	20/200	Disc. 6 weeks. 4 days.	20/70	In 4 days.
25	Th. H. 54.	Ripe.	Feb. 24th. 17 days.	20/70	Disc. 7 weeks. 5 days.	20/20	In 3 months.

26	J. O'R. 69.	Ripe.	March 2d. 13 days.	$\frac{20}{60}$	Disc. 26 days. 5 days.	9 months.
27	M. F. 67.	Ripe.	March 2d. 15 days.	$\frac{20}{60}$	Disc. 15 days.	2 months.
28	Ch. Ren. 71.	Ripe.	March 2d. 14 days.	$\frac{20}{100}$	Disc. 4 weeks. 4 days.	In 4 days. In 11 months.
29	Eust. 43.	Ripe.	March 30th. 15 days.	$\frac{20}{40}$	Disc. 4 weeks. 3 days.	In 7 days.
30	Giov. 64. Brightic.	Ripe.	April 6th. *Prolapse* of iris ; cut. Iritis plastic. 42 days.	$\frac{10}{200}$		
31	J. St. 76.	Hypermat. Iris atrophic.	April 10th. Eczema palpebr. Small *prolapse* of iris ; cut on 14th day. 29 days.	$\frac{20}{200}$	Disc. 7 weeks. 5 days.	$\frac{20}{70}$ In 5 days.
32	A. Kn. 55.	Accreta.	April 10th. No reaction. Died of apoplexy on ninth day.	$\frac{20}{40}$ estimated.		Condition of eye perfect.
33	C. K. 64.	Complicated.	April 11th. 19 days.	$\frac{20}{60}$	Disc. 2 mos. 5 days.	Od. pale.
34	Cant. 56.	Ripe.	April 11th. 13 days.	$\frac{20}{60}$	Disc. 1 month. 3 days.	In 4 weeks.
35	S. Degh. 65.	Ripe.	April 11th. 12 days.	$\frac{20}{60}$	Disc. 1 month. 5 days.	In 4 weeks.
36	Breit. 64.	Ripe.	April 14th. 14 days.	$\frac{20}{60}$	Disc. 1 month. 5 days.	In 5 days. In 3 days.
37	Fr. Hem. 45.	Milky.	April 16th. Puriform discharge. Wound healed well. Remnants in pupil. 14 days.	$\frac{20}{200}$	Disc. 5 weeks. 8 days.	Cultivation from discharge. Vigorous growth of staphylococ. pyogenes.
38	Davis. 64.	Ripe.	April 19th. Blood and remnants. Slight iritis. Pupil distorted. No relapse. 23 days.	$\frac{20}{200}$	Disc. 23 days. 4 days.	$\frac{20}{60}$ In 4 days.
39	Kittr. 66.	Ripe.	April 26th. 12 days.	$\frac{20}{60}$	Disc. 27 days. 4 days.	
40	Mrs. Bass. 58.	Hypermat.	April 26th. Capsule extracted with forceps. "Breech delivery" 4th day ; pupil central. Next night restless, hurt eye. 5th day, small *prolapse*. 14 days.	$\frac{20}{200}$	In two months, *prolapse*, which had become swollen (cystoid), *abscised*. Healing smooth. 5 days.	In 3 months, with $+\frac{1}{42}\frac{1}{2} + \frac{1}{16}$ ax. Normal.
41	Mrs. Osw. 60.	Ripe.	April 26th. 18 days.	$\frac{20}{60}$	Disc. 4 weeks. 4 days.	
42	N. Lup.	Morgagn.	May 1st. 14 days.	$\frac{20}{60}$	Disc. 4 weeks. 5 days.	
43	Sturz. 77.	Ripe.	May 2d. 16 days.	$\frac{20}{100}$	Disc. 23 days. 5 days.	In 10 days.
44	Bartur. 62.	Ripe.	May 4th. 13 days.	$\frac{20}{60}$	Disc. 6 weeks. 5 days.	
45	J. F. 59.	Ripe.	May 7th. 13 days.	$\frac{20}{70}$	Disc. 3 weeks. 5 days.	In 5 days. In 29 days.
46	G. Marshall. 69.	Ripe.	May 8th. Eye collapsed ; a considerable quantity of corros. subl., 1 : 10,000, injected into ant. chamber. Striped and diffuse keratitis. Pupillary membrane. 22 days.	$\frac{3}{200}$	7 weeks. Closing of pupil ; *iridectomy*, with Tyrell's hook. Pupil closed again.	$\frac{20}{80}$ Failure by keratitis and irido-choroiditis, probably in consequence of too much corros. subl. being injected.
47	R. H. 52.	Ripe.	May 8th. 11 days. Corros. subl. injected.	$\frac{20}{200}$	Disc. 3 weeks. 5 days.	$\frac{20}{100}$ In 5 days. Cornea still hazy.
48	Gleason. 42.	Ripe.	May 8th. 26 days. Corros. subl.	$\frac{20}{200}$		Cornea still hazy when last seen, 5 weeks after extraction.
49	H Liv. 70.	Nigra.	May 9th. No reaction. On 14th day, T_1 ; cornea wrinkled ; F contracted on nasal side. 18 days.	$\frac{1}{200}$		$\frac{20}{70}$ with $+\frac{1}{2}$ J_1. Eye gradually assumed normal tension. F defect disappeared in 6 weeks.

No.	Name, Age, Health.	Cataract ; Eye.	Operation, Healing, Duration of Treatment.	Primary S.	Secondary Operation after Extraction, Healing, Duration of Treatment.	Ultimate S.	Remarks.
50	Mrs. DeC. 66.	Ripe.	May 10th. 14 days.	20/40	Disc. 3 weeks. 5 days.	20/60	Five days after the extr. the other eye developed acute conjunctival catarrh. The operated eye, kept carefully bandaged, did not catch it.
51	Mrs. Ho. 53.	Ripe.	May 11th. 24 days.	20/70	Disc. 33 days. 5 days.	20/30	In 5 days.
52	Miss H. 37.	Compl.	May 11th. 14 days.	20/70	Disc. 27 days. 5 days.	20/30	Opacities of vitreous.
53	Mrs. T. 66.	Compl.	May 14th. 14 days.	20/70	Disc. 3 weeks. 5 days.	20/30	In 10 days.
54	M. Sm.	Compl.	May 17th. 13 days.	20/100	Disc. 5 weeks. 5 days.	20/30	In 5 days.
55	Barn.	Compl.	May 19th. 19 days.	20/70	Disc. 15 days. 5 days.	20/30	In 6 weeks.
56	Allen.	Compl.	May 19th. 13 days.	20/70	Disc. 4 weeks. 5 days.	20/30	
57	C. Bergn.	Compl., m. and opacities of vitreous.	May 20th. *Prolapse* of *vitreous*. Iris reduced. Pupil oblong.	20/200		20/60	Unmanageable patient.
58	Cath. W. 58.	Ripe.	May 21st. 15 days.	20/70	Disc. 18 days. 6 days.	20/30	
59	Tusca. 39.	Soft.	May 24th. Thickened capsule extracted. 13 days.	20/70	Disc. 3 weeks. 4 days.	20/30	In 4 days. In 2 weeks.
60	Conn. 65.	Ripe.	May 30th. Capsule extracted. 14 days.	20/40	Post. capsule dull. Disc. 3 weeks. 5 days.	20/30	
61	Mrs. Kr. 68.	Ripe.	June 6th. Some adhesions. 14 days.	20/200	Disc. 4 weeks. 5 days.	20/60	Vitreous hazy.
62	Mrs. S. 70.	Ripe.	June 6th. 14 days.	20/30	In six months S. had fallen to 20/70. Disc. 5 days.	20/60	
63	Mrs. C. 55.	Morg.	June 7th. 14 days.	20/40			
64	M. Ger. 27.	Soft, cholesterinic.	June 7th. 12 days.	20/200	Disc. 18 days. 4 days.	20/60	In 4 days.
65	M. Ochs. 56.	Ripe.	June 8th. Remnants. 16 days.	1/200	Disc. 16 days. 4 days.	15/200	
66	H. Harris. 84.	Ripe.	June 15th. 12 days.	20/100	Disc. 12 days. 4 days.		
67	M. Cr. 60.	Ripe.	Oct. 3d. 14 days.	20/200	Disc. 3 weeks. 5 days.	20/60	
68	McK.	Soft, traum.	Oct. 3d. 14 days.	20/30	Disc. 24 days. 4 days.	20/60	
69	Cath. B. 58.	Ripe.	Oct. 5th. 14 days.	20/70			Chr. conjunct. catarrh.
70	I. St. 28.	Soft.	Oct. 6th. 14 days.	20/70	Disc. 23 days. 5 days.	20/30	Chr. conjunct. catarrh.
71	Dr. Sale. 81.	Ripe.	Oct. 10th. 18 days.	20/70	Disc. 4 months. 4 days.	20/30	In 10 days.
72	Mrs. Sch. 80.	Ripe.	Oct. 10th. 15 days.	20/200	Disc. 16 days. 5 days.	20/30	In 5 days. In 4 months.
73	G. D. W. 79.	Ripe.	Oct. 12th, 12 days.	20/70	Disc. 12 days. 5 days.	20/30	
74	Indig. 65.	Complicated.	Oct. 12th. 13 days.	20/100	Disc. 4 weeks.	20/60	Homonymous hemianopsia from previous apoplexy.
75	El. Fox. 70.	Ripe.	Oct. 13th. 13 days.	20/70	Disc. 16 days. 10 days.	20/40	
76	E. Hay. 77.	Complicated.	Oct. 17th. 14 days.	20/70	Disc. 14 days. 5 days.	20/30	Eye weak before cataract developed.
77	Mrs. R. 65.	Ripe.	Oct. 19th. 13 days.	20/30	In a month 20/40. Disc. 1 month. 5 days.	20/30	

78	Terk. 72.	Ripe, complicated.	Oct. 24th. 14 days.	$\frac{20}{100}$	Disc.	15 days. 9 days.	$\frac{20}{40}$	Floating opacities of vitreous. They had been seen before the cataract developed.
79	A. Tell. 74. Restless, eccentric.	Ripe.	Oct. 26th. Spongy exudation. 16 days.	$\frac{20}{200}$				
80	L. Hen. 42.	Ripe.	Oct. 26th. 12 days.	$\frac{20}{100}$	Disc.	4 weeks. 5 days.	$\frac{20}{40}$	Had ozæna and ulcus cruris.
81	M. O. 56.	Ripe.	Nov. 2d. 13 days.	$\frac{20}{100}$				
82	M. Touz. 65.	Ripe.	Nov. 3d. 18 days.	$\frac{20}{70}$	Disc.	18 days. 6 days.	$\frac{20}{200}$	
83	Morse. 75.	Ripe.	Nov. 7th. 14 days.	$\frac{20}{70}$	Disc.	23 days. 5 days.	$\frac{20}{200}$	In 10 days.
84	Ho. 75.	Ripe. M.	Nov. 7th. *Vitreous* escaped while remnants were pressed out. Iris reduced. No reaction. 3d day, *prolapse of iris*. Cut on 5th and 9th day. Healing smooth. Pupil excentric, perfectly unobstructed (capsule pushed sideways by vitreous). 18 days.	$\frac{20}{70}$			$\frac{20}{200}$	With + 17 + 16ch. Reads, day and night, with + 5 + 16ch. Pupil and fundus perfectly clear. No discomfort.
85	M. L. 43.	Ripe.	Nov. 12th. 13 days.	$\frac{20}{70}$	Disc.	3 weeks. 5 days.	$\frac{20}{200}$	In 5 days.
86	Mrs. Pf. 51.	Ripe.	Nov. 12th. 13 days.	$\frac{20}{50}$	Disc.	32 days.	$\frac{20}{200}$	In 5 weeks. In 5 days. In 4 weeks.
87	O. Bc. 46.	Cat. accreta.	Nov. 14th. After expulsion of lens, a bead of *vitreous escaped*. Iris reduced. Pupil excentric. 14 days.	$\frac{20}{50}$			$\frac{20}{200}$	In a month. Had albuminuria and casts.
88	Mrs. C. 69.	Ripe.	Nov. 16th. 18 days.	$\frac{20}{100}$	Disc.	1½ minutes.	$\frac{20}{200}$	In 6 days.
89	Mrs. Tort. 62.	Ripe.	Nov. 16th. 11 days.	$\frac{20}{70}$	Disc.	19 days. 5 days.	$\frac{20}{200}$	In 12 days.
90	Mrs. Z. 68.	Morg.	Nov. 28th. 14 days.	$\frac{20}{100}$	Disc.	14 days. 6 days.	$\frac{20}{70}$	In 6 days.
91	Cath. L. 47.	Ripe.	Nov. 28th. 20 days.	$\frac{10}{200}$				Has always had poor sight and strab. conv. in that eye.
92	T. Donoh. 76.	R. Ripe.	Dec. 5th. 14 days.	$\frac{20}{70}$				
93	"	L. Ripe.	Dec. 19th. 15 days.	$\frac{20}{70}$			$\frac{20}{50}$	
94	Mrs. C. 50.	Ripe.	Dec. 5th. 14 days.	$\frac{20}{100}$				
95	Mrs. Bart. 62.	Ripe.	Dec. 10th. 13 days.	$\frac{20}{100}$	Disc.	2 minutes. 3 days.	$\frac{20}{40}$	In 3 days.
96	Mrs. Cun. 60. Ozæna.	Ripe.	Dec. 12th. 17 days.	$\frac{20}{200}$				
97	C. Caldw. 67.	Ripe.	Dec. 21st. Eye excellent until 11th day, when he hurt eye with his fist. Free *escape of vitreous*. Iris tilted back. Healing good, but with excentric pupil. 20 days.	$\frac{20}{100}$			$\frac{20}{50}$	In 5 weeks.
98	R. Curtis. 59. Diabetes.	Ripe.	Dec. 27th. 11 days.	$\frac{20}{70}$	Disc.	33 days. 4 days.	$\frac{20}{200}$	
99	P. H. W. 43.	Nuclear sclerosis.	Dec. 29th. 13 days.	$\frac{20}{30}$				
100	J. Blum.	Ripe.	Dec. 29th, 1888. 17 days.	$\frac{20}{200}$	Disc.	3 weeks. 5 days.	$\frac{20}{50}$	

9. Six cases of PROLAPSE OF IRIS.

In the *first* (No. 18), patient restless; prolapse cut. S = $\frac{20}{40}$.

In the *second* (No. 30), the prolapse was cut on the fourteenth day. Plastic iritis. S only $\frac{10}{200}$. Patient in an advanced stage of Bright's disease.

In the *third* (No. 31), the prolapse was small; cut on the fourteenth day. S = $\frac{20}{70}$. The cataract was hypermature, and the iris atrophic. Patient, æt. seventy-six, had eczema palpebrarum.

In the *fourth* (No. 40), the thickened capsule of a hypermature cataract had been extracted. Pupil round on fourth day. Eye hurt during fourth night. Prolapse small; became swollen and cystoid in two months; abscised; healing without reaction. S = $\frac{20}{40}$.

In the *fifth* (No. 46), an inordinate quantity of corr. subl. ($\frac{1}{10000}$) had been injected, causing pain the whole night. Eye lost from irido-cyclitis (see above).

In the *sixth* (No. 84), a man of seventy-five, prolapse of vitreous had previously occurred during the operation; the prolapsed iris was pushed back; cut twice. S = $\frac{20}{30}$ (see above).

In my first series of 100 extractions without iridectomy prolapse of iris occurred in twelve cases; in the present, where it occurred in six cases, five were among the first fifty, one in the second fifty cases of the series. Great care in operating, crowding out, *i. e.*, reserving for iridectomy, the unpromising cases (atrophy of iris, fluidity and prolapse of vitreous, restless and unmanageable patients), may reduce the number of cases of prolapse still more. I feel convinced, from recent observations, that secondary prolapse of the iris, just as secondary hemorrhage into the anterior chamber, is of traumatic origin in almost all cases, if not in every one. Its prevention depends on careful nursing. To have the patient's hands tied from the third day on is a wise precaution, lest, in sleep, he should unconsciously hurt the itching eye. In two cases of the present series the accidental omission of this precaution was followed by a rupture of the wound, in others by a partial separation of the edges of the wound, causing hyphema, but no prolapse. Surely, by observing all these rules, prolapse, this justly dreaded complication

of simple extraction, can be confined to exceptional cases; yet I dare not entertain the hope ever to rival Galezowski, who, in the last 200 operations, had prolapse of the iris in one case only.[1] He thinks that the prolapse is mostly produced through premature opening of the eye by the surgeon. Since he began leaving the eye closed during the first six days, he has had no more hernias.

Among the present series of 100 cases the

Cataract was complicated

in the following 13:

1. In five (Nos. 1, 7, 53, 57, 78) with *opacities of the vitreous*, producing spongy exudation in one (7), and escape of vitreous in another (57). S in these cases was $\frac{20}{40}$, $\frac{20}{70}$, $\frac{20}{70}$, $\frac{20}{50}$, $\frac{20}{40}$.
2. *Rarefaction of choroid*, 1 case (No. 2), S $\frac{20}{40}$.
3. *Mac. corneæ*, 1 case (No. 16), S $\frac{20}{70}$.
4. *Atrophy of iris*, 1 case (No. 31); iris prolapsed, S $\frac{20}{70}$.
5. *Post. Synechiæ*, 2 cases (Nos. 32 and 87), S $\frac{20}{40}$ in both.
6. *Formation of cholesterine*, 1 case (No. 64), S $\frac{20}{70}$.
7. *Hemianopsia* from cerebral apoplexy, 1 case (No. 74), S $\frac{20}{50}$.
8. *Previous amblyopia*, 1 case (No. 76), S $\frac{20}{50}$.
9. *Inordinate myopia*, 1 case (No. 84). Escape of vitreous and prol. of iris occurred, S $\frac{20}{30}$.
10. Former *strabismus convergens*, 1 case (No. 91), S $\frac{10}{200}$.

Visual Results.

A. Primary vision—*i. e.* on the day of discharge.	Ultimate vision.
$\frac{20}{30}$ in 6 cases.	$\frac{20}{20}$ in 30 cases.
$\frac{20}{40}$ " 7 "	$\frac{20}{30}$ " 10 "
$\frac{20}{50}$ " 12 "	$\frac{20}{40}$ " 18 "
$\frac{20}{70}$ " 30 "	$\frac{20}{50}$ " 15 "
$\frac{20}{100}$ " 19 "	$\frac{20}{70}$ " 13 "
$\frac{20}{200}$ " 17 "	$\frac{20}{100}$ " 5 "
$\frac{15}{200}$ " 1 case	$\frac{20}{200}$ " 6 "
$\frac{10}{200}$ " 5 cases	$\frac{10}{200}$ " 2 "
$\frac{3}{200}$ " 1 case	
$\frac{1}{200}$ " 1 "	
$\frac{1}{\infty}$ " 1 "	$\frac{1}{\infty}$ " 1 case

[1] Bericht des 7ten Int. ophth. Congr., p. 156.

Expressing this in the customary manner, we have

Primary S.	Ultimate S.
Good in 91 %	97 %
Moderate in 8 %	2 %
Failure in 1 %	1 %

If we consider the primary and the ultimate vision, we find the difference enormous. In the first column there is not one case with S $\frac{20}{20}$; in the second there are 30 cases; moderate results have been reduced from 8 % to 2 %. If we consider the (ideal) possible maximum to be $\frac{20}{20}$ in all cases, and calculate how much the column of primary and that of secondary vision fall short of this result, we obtain in primary S a deficiency of 74 %; in the secondary S a deficiency of 43 % (fractions omitted), a gain of 31 %. The cause of this gain was the

Subsequent discission of the capsule

which was done in seventy-four cases. This general gain was obtained without the destruction or even deterioration of a single eye. In several cases some inflammation (cyclitis, with diffuse opacities of the vitreous) followed, and took several weeks to disappear, but no eye was injured, *i. e.*, had its previous vision rendered worse. I cannot, therefore, concur in the widespread dread of the division of secondary cataract, which Gayet eloquently words[1] as follows: "En ce qui me concerne, il n'est pas d'opération que je redoute davantage; elle me paroit toujours incertaine, souvent inutile, parfois très-dangereuse." I know that this operation is delicate, requires precaution, judgment (passing the knife-needle through the places of least resistance, and avoiding unyielding cords), good artificial light, perfect sight (a hyperopic or presbyopic operator ought to make himself myopic by a strong glass), and a sharp knife-needle which retains the aqueous. The after-operations in the present series are a new confirmation of what, in former reports, I have stated over and over again, and the synopsis under consideration furnishes the evidence in each case

[1] Bericht des of 7ten Intern. ophth. Cong., p. 133; last line.

for any one who will take the trouble to examine the series. The column of ultimate vision does not sufficiently express the real gain in S, for very many entries were made on the day the patients were discharged, commonly the fifth after the discission. At this time, there is usually still some turbidity of the vitreous, which clears up later, as is illustrated in the synopsis by all the cases of which later examinations could be made. Returning to the mathematical expression of the acuteness of sight obtained, we find that, at the day of discharge, the patients lacked 74 % of the possible maximum, they possessed only 26 %, *i. e.*, on an average they received only S = $\frac{26}{100}$, or $\frac{1}{4}$ of the normal standard; whereas the column of ultimate vision, *i. e.*, after the discission of the capsule, shows that they possessed 57 %, *i. e.*, S = $\frac{57}{100}$, or almost $\frac{3}{5}$ of the normal standard, their S ranging between $\frac{20}{30}$ and $\frac{20}{40}$. If we bear in mind that a number of cataractous eyes are more or less diseased, and, apart from the cataract, would have diminished visual acuteness, the above result seems remarkably gratifying, pleading the cause of the operative method more forcibly than the most plausible arguments of the severest critic.

If I review my cases, the opinion is forced upon me that *the simple extraction is not only the best but also the safest method of removing cataract.* The iris, spread out as a *velum interpositum* between the corneal section and ciliary body, protects this, the most susceptible part of the eye, from the deleterious substances that may enter through the wound.

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