extraction. One advantage, pointed out by several operators, outweighs, in my opinion, all others, that is the *perfect freedom of the section from portions of lens, capsule and iris*, provided that the latter be obtainable, as it seems it is. The complete reduction of the iris, either spontaneous or instrumental, and the injection of a liquid into the anterior chamber, along the whole section, insure cleanliness of the wound and consequently primary union more than seems possible by any other method.

REPORT OF FIFTY CASES OF CATARACT EXTRACTION, WITH REMARKS.

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AT the meeting of this Society, held at the Kaaterskill House, in July, 1883, I reported my first thirty-five cases of cataract extraction. I now avail myself of the privilege of presenting the statistics of my next fifty consecutive cases. These fifty extractions were done upon the eyes of forty-three different patients, seven of them having had both eyes operated upon. Five of the seven had the second eye operated upon a longer or shorter time after having recovered from the operation on the first. The other two had the cataract extracted from both eyes at the same sitting. All four of the eyes in these two cases made smooth recoveries, and in one of the cases the resulting vision was $\frac{20}{20}$ when both eyes were used at once, $\frac{20}{40}$ each when tested separately. I wish to place myself on record, in this connection, that, heretical as it may seem, *I approve of double cataract extractions in judiciously selected cases.* I have seen the operation performed upon both eyes at the same sitting four times in all, and every eye in all these four cases healed kindly and recovered good sight. Of course the opportunity to operate upon both eyes at once occurs comparatively infrequently. In the vast majority of

cases when the patient presents himself to the ophthalmic surgeon the cataract is mature in only one eye, and no one would think of operating upon the second eye while the cataract remained in an immature condition. This is almost invariably the case when the patient resides in or near any of the larger cities. Cataract seldom ripens in both eyes with equal rapidity, and as soon as one eye is practically blind the patient applies for relief, and I think ophthalmic surgeons are now generally in favor of operating upon the eye in which the cataract is mature while there is still sufficient vision remaining in the fellow eye to enable the patient to get about. But very frequently, I may almost say, *as a rule*, persons of moderate means, or of no means at all, residing at a distance from ophthalmic surgeons, on occount of the trouble and expense defer consulting the eye surgeon as long as they retain any useful vision, and sometimes much longer.

In the class of cases just referred to, if both cataracts are not extracted at the same sitting the chances are that the second one will never be extracted. Every day such a patient remains away from his home and family seems to him an age; every dollar he spends for board and for doctor's fees seems to him a small fortune. If he gets through the operation safely, and recovers the sight of one eye, he thinks that will do well enough for him. He will not return and spend the rest of the hard-earned savings of a life-time in order to recover the sight of his other eye. It is better to operate upon both eyes at once in such cases for several reasons:

1. It is obviously better that the patient should have the sight of both eyes than of only one for the rest of his life.

2. It enlarges his visual field, so that the danger of his being run over, or of his running against things, is diminished.

3. A cataractous lens, allowed to remain in the eye until it becomes hypermature, is liable to assume the characteristics of a foreign body. It may undergo calcific degeneration. It may easily become dislocated spontaneously. In either case, it not only endangers the eye in which it is, but may even, by sympathetic inflammation, destroy the sight of the eye which has been successfully operated upon.

4. My own experience and observation do not lead me to suppose that the risks to the patient are very much increased by operating upon both eyes at the same sitting.

The method of operating in these fifty cases has been the same as that in my first reported thirty-five cases, viz.: A modified Graefe's cut in all the cases. A preliminary iridectomy was done in five cases, and in one of them Foerster's massage of the lens was attempted. Having had the misfortune of seeing one or two eyes that had been lost apparently in consequence of Foerster's massage, and having read and heard of several others, I confess I stroked the cornea over the region of the coloboma very gently, and I do not think the operation was very effectual in hastening the ripening of the lens. All the cases in which preliminary iridectomy was done, including the Foerster's, did well, however, the resulting vision in every case being more than $\frac{20}{200}$.

The lens was extracted in its capsule in four cases, in two cases intentionally, in the other two in response to the emergencies of the operation.

In one case the cataract had existed for fifteen years, and the lens had become shrunken and had undergone calcific degeneration. In this case I did an iridectomy, and then removed the lens with a wire spoon, without the loss of a drop of vitreous. Although this eye healed kindly, and with a clear pupil, the resulting vision was only $\frac{10}{200}$, and I have to reckon it with the partial successes; the real cause, no doubt, being due to the damaged condition of the eye from having so long contained a calcific lens, or to an abnormal condition of the eye, which had *caused* the lens to become calcified. In another case a previous operation for the removal of the cataract had been attempted by a doctor in a neighboring city, but, for some reason unknown to the patient or to myself, he had abandoned the attempt, leaving the cataract *in situ*. The only result was so wide a dilation of the pupil that only the smallest or narrowest rim of iris remained visible. In this case I found it very easy to extract the lens in its capsule without iridectomy. In a third case, the vitreous followed my knife on completing the incision, and I had no time to do

an iridectomy or lacerate the capsule, but at once proceeded to deliver the lens by pressure, with very little loss of vitreous. In the fourth case the lens presented at the wound on completing the iridectomy, and the indications seemed to be to extract it without lacerating the capsule, which I easily accomplished.

There were few cases in which so-called accidents occurred during the operation, other than those I have already described. In one case, the patient being apparently well under ether, as soon as I seized his iris with the iris-forceps he suddenly partially closed his eyelids, and, at the same time, rolled his eyeball upward, so that before I could let go the iris was torn and the anterior chamber filled with blood. In another case, after the extraction had been completed, and the speculum removed, upon my raising the upper lid with my finger, to see that the wound was clean and its lips well coaptated, a sudden spasmodic closure of the lids *turned over the corneal flap*, and produced a gush of vitreous. The eye was lost as the consequence.

As to the complications during recovery: In three cases there was *prolapse of the iris*, occurring on the fifth, ninth, and tenth days respectively. *Plastic iritis* occurred in six cases, resulting in closure of the pupil in three of them. Two eyes were lost by *suppuration*, commencing at the wound and extending to the iris and the vitreous. A third was lost by *glaucoma*, commencing after the eye had recovered from the operation with vision $\frac{20}{200}$.

One patient, a female, had a very severe attack of jaundice, coming on a day or two after the operation, but this did not interfere with the good recovery of the eye.

No.	Age.	Sex.	General Health.	Quality and Duration.	Method of Operating; Anæsthetic; Remarks; After-Treatment, Etc.	Time in Hospital.	Date of Record of Vision.
1	62	M	Good.	Senile, 2 years.	Graefe up; iris torn by sudden, spasmodic closure of lids while iris was in grasp of forceps: considerable hæmorrhage: ether; no vomiting; some pain first three days.	18 days.	6 months. $V=\frac{20}{40}$
2	55	F	Poor.	Senile, 1 year.	Graefe up; ether; no accident; thin cornea; recovery smooth.	26 days.	26 days. $V=\frac{20}{70}$
3	70	F	Fair.	Senile.	Ether; Graefe up; no accident; thin cornea; recovery smooth.	24 days.	24 days. $V=\frac{20}{200}$
4	76	M	Poor.	Senile.	No anæsthetic; Graefe up; healed with membrane in pupil; keratonyxis on 28th day.	23 days.	5 weeks. $V=\frac{20}{100}$
5	62	M	Good.	Senile.	Ether; Graefe up; slight hæmorrhage into ant. cham. from cut iris; keratonyxis 4 mo. and again 8 mo. after operation.	20 days.	1 year. $V=\frac{20}{40}$
6	52	M	Chronic Bronchitis.	Senile.	Graefe up: recovery smooth; no anæsthetic; keratonyxis 14 days and also 30 days after extraction.	18 days.	18 days. $V=\frac{20}{200}$
7	65	F	Poor.	Senile, 5 years.	Ether; Graefe up; no accident; recovery smooth.	28 days.	28 days. $V=\frac{20}{50}$
8	64	F	Good.	Senile, 1 year.	Ether; Graefe up; considerable soft lens matter remained; on fifth day slight prolapse of iris in angle of wound.	33 days.	33 days. $V=\frac{20}{50}$
9	58	M	Good.	Senile, 1 year.	Ether borne badly; coughed frequently; Graefe up; no accident.	21 days.	3 months. $V=\frac{20}{40}$
10	63	M	Good.	Senile, 1½ years.	No anæsthetic; Graefe up; some bleeding into anterior chamber.	21 days.	4 months. $V=\frac{20}{70}$
11	67	M	Fair.	Senile, 8 years.	Ether; Graefe up; considerable bleeding into anterior chamber; chemosis on 6th day, controlled by iced cloths and atropine: keratonyxis on 32d day.	36 days.	43 days. $V=\frac{20}{100}$
12	73	F	Good.	Senile, 1 year.	Ether; Graefe up; anterior chamber filled with blood; keratonyxis on 14th day.	27 days.	27 days. $V=\frac{20}{200}$
13	54	M	Poor.	Senile.	No anæsthetic; upward cut, and vitreous followed the knife; lens in its capsule delivered by pressure without iridectomy; prolapse of iris on 10th day; pressure bandage.	14 days.	5 weeks. $V=\frac{20}{200}$
14	63	M	Poor.	Senile, 3 years.	No anæsthetic; Graefe up; no accident; recovery smooth.	21 days.	21 days. $V=\frac{20}{200}$
15	68	F	Good.	Senile, 2 years.	Ether; Graefe up; some cortex left; severe attack of jaundice during recovery: 14 weeks after extraction failed to cut the pupillary membrane with Knapp's knife-needle; 3 days later removed it by Agnew's hook operation.	23 days.	5 months. $V=\frac{20}{70}$
16	76	M	Good.	Senile, 10 years.	Ether taken badly; Graefe up; on 9th day prolapse of iris; iced cloths and atropine.	21 days.	13 months. $V=\frac{20}{40}$

17	49	M	Good.	Senile, 9 years.	No anæsthetic; Graefe up; fourth day suppuration of wound; suppurative iritis; slight atrophy of globe; enucleated 11 months later.	30 days.	V=0.
18	60	M	Good.	Senile, 1 year.	Ether; upward cut, after iridectomy lens presented in its capsule, and was extracted without loss of vitreous.	19 days.	35 days. $V=\frac{20}{200}$
19	49	M	Good.	Nuclear, 9 years.	Cocaine; preliminary iridectomy and Foerster's operation six weeks previous; Graefe up; keratonyxis 7 weeks later, and repeated in 3 days. (Other eye of Case 17.)	29 days.	1 year. $V=\frac{20}{30}$
20	77	F	Good, but crippled with rheumatism.	Senile, 3 years.	Cocaine; Graefe up; recovery smooth.	36 days.	1 year. $V=\frac{20}{40}$
21	67	F	Good.	Senile, 10 years.	Ether; preliminary iridectomy 6 weeks previous; upward cut; iritis with adhesions; keratonyxis; granular lids.	3½ months	3½ mos. $V=\frac{20}{200}$
22	38	M	Good.	Traumatic, 1 year.	Cocaine; Graefe up; keratonyxis 8 weeks, and again 10 weeks after.	27 days.	14 months. $V=\frac{20}{15}$
23	77	F	Bent almost double with rheumatism.	Senile, 3 years.	Cocaine; Graefe up; suppurative iritis; closure of pupil; iridectomy 6 months later. (Other eye of Case 20.)	37 days.	6 months. V=fingers at 3″.
24	69	M	Good.	Senile, 5 years.	Cocaine; upward cut; lens removed in capsule without iridectomy.	21 days.	20 days. $V=\frac{20}{40}$
25	69	M	Good.	Senile, 5 years.	Cocaine; Graefe up. (Other eye of Case 24, and both done at same sitting.)	21 days.	20 days. $V=\frac{20}{40}$
26	41	F	Fair.	Senile, 6 years.	Cocaine; Graefe up (tried to extract in capsule without iridectomy, but failed).	19 days.	19 days. $V=\frac{20}{40}$
27	55	F	Good.	Senile, 5 years.	Cocaine; Graefe up; after extraction was completed, raised upper lid to see whether wound was all right, when, by a sudden, spasmodic closure of lids, patient everted the corneal flap and extruded considerable vitreous; eye lost by suppuration.	27 days.	27 days. V=perception of light.
28	57	F	Good.	Senile, 7 years.	Cocaine; Graefe up; keratonyxis 50 days later.	21 days.	2 months. $V=\frac{20}{50}$
29	77	M	Good.	Senile, 2½ years.	Cocaine; Graefe up; on escape of lens some vitreous followed. (Other eye of Case 16.)	20 days.	2 months. $V=\frac{20}{20}$
30	56	F	Good.	Senile, 6 years.	Cocaine; Graefe up; considerable cortex left; keratonyxis 3 months later.	33 days.	4 months. $V=\frac{20}{30}$
31	60	F	Good.	Senile, 2 years.	Cocaine; Graefe up; cortical matter left in the pupil; keratonyxis 6 weeks later.	21 days.	8 months. $V=\frac{20}{20}$
32	63	M	Good.	Senile, 2 years.	Cocaine; Graefe up; iritis; opacity of cornea; iridectomy 3 months later.	40 days.	3 mos. $V=\frac{20}{200}$
33	53	F	Good.	Senile, 1 year.	Cocaine; Graefe up; iritis with closure of pupil; iridectomy 6 weeks later, followed in 2 weeks by keratonyxis.	28 days.	6 mos. $V=\frac{20}{200}$

No.	Age.	Sex.	General Health.	Quality and Duration.	Method of Operating; Anæsthetic; Remarks; After-Treatment, Etc.	Time in Hospital.	Date of Record of Vision.
34	39	F	Fair.	Senile, 5 years.	Cocaine; Graefe up; keratonyxis; vision equals twenty two-hundredths; glaucoma afterwards set in, and several operations were done, leaving only perception of light.	28 days.	V=percep. of light.
35	59	M	Good.	Senile, 2 years.	Cocaine; Graefe up; keratonyxis on 18th day. (Other eye of Case 9.)	25 days.	6 weeks. $V=\frac{20}{40}$
36	75	F	Rather feeble.	Senile, 2 years.	Cocaine; Graefe up; recovery smooth.	21 days.	21 days. $V=\frac{20}{100}$
37	75	F	Rather feeble.	Senile, 1 year.	Cocaine; Graefe up; recovery smooth. (Other eye of Case 36, and done at same sitting.)	21 days.	21 days. $V=\frac{20}{100}$
38	38	M	Good.	Rather soft, 7 years.	Cocaine; preliminary iridectomy done 20 months previously; upward cut; keratonyxis on 14th day.	19 days.	19 days. $V=\frac{20}{20}$
39	63	F	Has kidney disease, and is an opium eater.	Hard, several years.	Cocaine; Graefe up; iritis; was in hospital 6 years before with *diabetes* and choroido-retinitis.	21 days.	6 mos. V=counts fingers.
40	66	F	Good.	Senile, 2 years.	Cocaine; Graefe up; prelim. iridect. by Dr. C. R. Agnew 6 wks. bef. on acc. of old iritis with adhes's; recov. smooth.	21 days	3 mos. $V=\frac{20}{200}$
41	58	F	Good.	Senile, 9 years.	Cocaine; Graefe up; recovery smooth.	21 days.	21 days. $V=\frac{20}{30}$
42	64	F	Good.	Senile, 1 year.	Cocaine; Graefe up; pupil found full of soft lens matter on removal of bandage.	21 days.	V=counts fingers.
43	75	M	Good.	Lens had shrunken and undergone calcific degen'n. 15 years,	Cocaine; upward cut and iridectomy; lens removed in its capsule by wire spoon, without loss of vitreous; recovery smooth.	21 days.	21 days. $=\frac{10}{200}$
44	52	F	Good.	Senile, 1 year.	Ether; Graefe up; vomiting; soft lens matter left; keratonyxis on 24th day.	28 days.	V=counts fingers.
45	68	F	Fair.	Lens semi-transparent; some reflex from fundus. Many yrs.	Ether; Graefe up; some lens matter left in pupil; keratonyxis 23 days after.	4 weeks.	4 mos. $V=\frac{20}{200}$
46	74	F	Fair.	Senile, several years.	Ether; Graefe up; no accident.	2 mos.	9 weeks. $V=\frac{20}{50}$
47	75	M	Feeble.	Senile, 3 months.	Ether; Graefe up; no accident.	2 weeks.	2 months. $V=\frac{20}{40}$
48	65	F	Rheumatic.	Senile, 3 years.	Cocaine; preliminary iridectomy done under ether 5 months previously; patient nearly died under ether.	6 weeks.	1 year. $V=\frac{20}{50}$
49	72	M	Good.	Senile, 1 year.	Cocaine; Graefe up; iritis with closure of pupil; iridectomy downward 11 months later.	4 weeks.	1 year. V=counts fingers.
50	89	M	Fair.	1 year.	Cocaine; Graefe up; smooth recovery.	3 weeks.	2 months. $V=\frac{20}{70}$

Of the whole number of eyes operated upon, twenty-four recovered good vision without any secondary operation, and seventeen after one or more secondary operations. As to secondary operations, *keratonyxis* was performed *once* in each of twelve cases, *twice* in each of four cases, and in *another* case it had to be followed by Dr. Agnew's hook operation *Iridectomy* was performed four times, thrice for closure of pupil, and once for artificial pupil, in order to avoid a corneal opacity. One of the three *lost* eyes had to be enucleated, to insure the safety of the fellow eye, which was operated upon successfully.

As to sex, the patients were pretty evenly divided, twenty being males and twenty-three females. Their ages ranged from thirty-eight to eighty-nine.

In seventeen cases the operation was done under ether, in twenty-seven under cocaine, and in six cases no anæsthetic was used.

Of the six cases in which no anæsthetic was employed, five were successes and one a failure. Of the seventeen in which ether was used, sixteen were successes and one a partial success. Of the twenty-seven operated upon under cocaine, twenty-one were successes, four partial successes, and two failures.

The resulting vision was:

Successes	($\frac{20}{15}$ to $\frac{20}{200}$),	41 = 82%
Partial successes	($\frac{20}{200}$ to counting fingers),	6 = 12%
Failures	(counting fingers to 0),	3 = 6%

One eye had vision = $\frac{20}{15}$, the best I have ever known of after a cataract extraction.

All the eyes were operated upon with *aseptic precautions*, either a saturated solution of boric acid, or a solution of biniodide of mercury, 1 part to 25,000, being freely used.