The effect of Treatment on Strabismus

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Abbreviations
O.D. = right-eye
O.S. = left-eye
O.H. = both-eyes
V = Vision
∂ = Combined with ∂g. +4.2 +2.1° means +4 Sphere in combination +2 Cylinder axes Vertical
Near 90° = at a distance (6 meters) and near (12 inches)

In talking of Sphero-terms if the ∂g is stated with minus sign (−) a divergent-sphere in meant thus −36°.
When no sign is used convergent-plot is meant thus 36°

J.R. = Internus Rectus
E.R. = Externus Rectus
E.I. = Externus Inferior and means the refraction estimated by that method.

\[
\frac{6}{12} = \frac{6}{12} + 2 \quad \text{means that the vision is } \frac{6}{12} \text{ without glass but improved to } \frac{6}{12} \text{ with } +2.
\]

\[
\frac{6}{18} = \frac{6}{18} + 2 \quad \text{means that the vision is } \frac{6}{18} \text{ it can be improved by no glass but the patient has a hypermetropia manifest } +2.
\]
With a view to ascertain the exact effect of treatment on Strobismus by operation or spectacles, I have for some years measured the angular deviation in as many cases as possible, before anything at all was done and again at intervals during the treatment. In the following 79 cases the observations were all taken by myself. In 51 operations were performed. Thirteen were by my friend and former master Dr. C. E. P. Gerald, the remaining 21 I did myself.

The method of measurement is by a perimetric and candle. The patient is placed so that his squinting eye is in the centre of the circle. He is then directed to look at the centre of the arc or at a distant object in line with it. The lighter candle is now moved along the arc until the image of its flame on the cornea appears to be in the centre of the pupil. The observer's eye, if he prefers to use one only must be kept as close to the candle as possible. I prefer to keep both eyes open and hold the candle between them. When the luminous point is in the centre of the pupil, the position of the candle on the arc would indicate the angle of the squint, provided the visual axis passed through the centre of the pupil. This however is rarely the case. It is therefore necessary to cover the sound eye, and still keeping the squinting eye in the centre of the circle, direct the patient to look at the centre of the arc. If he has enough sight to fix at all, the visual axis must now cut the centre of the arc. The candle is now moved as before. The luminous point is generally brought to the centre of the pupil by moving the candle a few degrees out. This measures almost exactly the angle of departures, but as it is usually a trifle less from the displacement of the pupil inwards it is better to follow Landolt's example and call it the angle $\alpha$ to avoid ambiguity. In a very few cases I have found no angle $\alpha$ while in no case have I observed it inwards. It is evident that to know the true
angle of an internal squint, the angle $k$, if present, must be added to the amount previously ascertained; whereas in an external squint, it should be subtracted. In cases where from amygdaline or stupidity the angle $k$ cannot be taken it should be measured on the sound eye and the same amount assumed for the squinting one. This is only approximately correct, as in some of the following cases when it was taken in both eyes, the amount varied in each.

In some of the following cases the angle $k$ was not taken from want of time. This makes the actual amount of the squint uncertain, but the difference between two successive measurements will accurately indicate the angle of diminution produced by treatment.

When this method of measuring squint is carefully employed and the pupils moderately small, I do not think that an error of more than $1^\circ$ can be made above or below the actual amount.

In some of the cases the squint was measured in two ways. First, when the patient looked at the centre of the arc and again when he looked at a distant object in line with it. The centre of the arc is at 12 inches from the patient's eye. Therefore in the first method the patient is using about 3.5 D of accommodation and is converging 3.5 minute angles quite apart from any squint. In the second method where the object of fixation is about 6 meters distant, the visual axes should in the normal state be nearly parallel and the accommodation relaxed. In the following cases the angle for distance is called Longe and that for 12 inches Prox. They are denoted by the letters L & D & P respectively.

When the vision (V) is spoken of, it was tested by Snellen's types at 6 meters. There is one letter in the first line, two in the second, three in the third, and so on. If the patient reads only three letters correctly in a line, his vision is
expressed by the fraction proper to that line followed by a mark of interrogation for each letter missed. Thus 5/85 would mean that the patient at 6 metres read type would be legible at 18 metres but made two mistakes. Where the V is below 50 it is expressed by stating the number of metres at which fingers can be counted on a black background. 7 at 4" means fingers cannot be counted beyond 4 metres. The vision expressed by 7 at 6" is much the same as 50. I have therefore assumed them the same where I have made averages. 7 at 4" would therefore be approximately equivalent to 50-80 on.

To test the mobility of the eye outwards and inwards the perimetric and candle are again used. The eye under examination is placed in the centre of the circle, the face is made to look as nearly as possible straight in front and some intelligent person watches that the patient does not turn his head. The patient is then asked to look outwards as far as possible, and the candle carried out so long as its reflexion can be seen in the centre of the pupil. This gives in degrees the extent mobility. The internal mobility cannot be tested quite in the same way if the nose be at all developed. It is done thus. The patient looks at the centre of the arc and the candle is moved out till a point is reached where its reflexion is seen to slip off the outside of the cornea. The angular distance of this point is noted. The patient is now made to look inwards as much as possible, and the candle moved so that its reflexion is just on the outer edge of the cornea. If the candle is now outside the centre of the arc its angular distance must be subtracted from the amount previously measured. But if it be inside the centre its angular distance must be added. This gives the internal mobility.

The operations whether by Dr Fitzgerald or myself
were done in the same way.

Simple Tenotomy is done thus (Gräfe's Method). The Conjunctiva is incised with forceps and a vertical snip made with scissors between the forceps and the cornea and about 3 mm. from the sclero-corneal junction. The scissors, which are blunt-pointed and curved on the flat, are now introduced through the opening thus made and the conjunctiva and subconjunctival tissue separated from the globe for about 6 mm. backwards. Tenon's Capsule is opened and a strabismus hook passed beneath the tendon and brought well up to the insertion. The point of the hook is now made to emerge on its opposite side and the tendon divided by the scissors between the hook and the globe.

Tenotomy and advancement (de Wecker's Method) is done thus. The conjunctiva is divided if the hook passed as above. A silk suture is armed with three Needles, the centre one is passed through the tendon and made to emerge through the conjunctiva over it. The tendon is now divided as in the first operation. One of the other needles is now extended by the cornea and carried through the subconjunctival tissue along the upper margin of the cornea and brought out a little beyond the Vertical Meridian. The third needle is passed in a similar manner below the cornea. The central needle is now cut off, there are now two threads one above the other below. These are tied simultaneously by the operator and an assistant. We have usually employed the precaution when making the first part of a reef knot of passing the thread through twice. This prevents slipping and makes it less necessary to have a finger applied while the second loop is being made.
In those cases where an operation was performed it is underlined in red. The operator's name is placed on the page opposite.
Cases

D. B. act. 3 0S. Int. Stab. Began l. squint act. 2

E.I. OU. +3.5 c +1.50 d 1° Angle K OU. 5° diverg.

V. NA. tested

Lh & Squint NA. tested

15 June 1878 Ordered glasses for l. eye OUC +2.5

31 March 1882 O. L. Stab = 18°L V OA. 67

V OA. 67

18 Feb. '84 Ordered glasses for R. eye OUC +3.5 c +1.50 d

6 Aug '84 Tenotomy R. O.U.

7 " 0S. Int. Stab = 12°L continue glasses.

22 Sept. " " " " = 26°L SP = 0°L SP with glasses on

13 Aug '85 " " " " = 24°L SP = 0°L SP

Mobility OD 52° o

OA. 61° o

74° 60°

14 Aug. '85 Tenotomy R. O.D.

15 " Mobility OD 11° o

OA. 52° o

OA. Int. Stab = 3°. Loops continue glasses

9 Sept '85 O. B. Int. Stab = 23° L

5 Jan. '86 O. B. Can squint on 0D as he choose when he does

Squint Lh = 23° L

30 Oct. '86 do. do.

B.G. act. 9 O. B. Int. Stab. Began l. squint act. (NA. stated)

E.I. O.D. +1.5 O.B. +1.5 +0.5° Angle K NA. tested.

V. O.D. 67 O.B. 67

Lh & Squint = 8° L = 26° P

1.7. act. (NA. stated) O.D. Int. Stab. Has squinted for 8 years

E.I. O.D. +3.75 O.B. +3° Angle K OD = 0°

V O.D. 67 O.B. 67

Lh & Squint = 30° L = 31° P

= 17° L = 19° P. with E.I. glasses on

E.I. 0.4 + 0. Angle K O.B. = 4° diver.

V M. tested

L° & S. squat = 33° L

2 Mar. '82

Ordered glasses for Upper Branch O.U. + 2.

29 Jan '83

Tentosty I.R. O.B. Continue glasses

7 Nov '83 O.B. Int. Stab = 3° L = 0° with glasses on. Continue glasses.

V O.D. 6/6!!! O.B. 6/8

20 Feb '84 O.B. Int. Stab = 8° L = 0° with glasses on.

27 Feb '84

Tentosty I.R. O.D. Continue glasses

19 Feb '85 O.B. Ext. Stab = 2° L = Int. Stab = 2° P

= 4° L = Ext. Stab = 8° P.

V O.D. 6/6!!! O.B. 6/6!!!


E.I. O.D. + 0. O.B. + 0. Angle K un-taken.

V O.D. 6/6!!! O.B. 7/12 + 3°

L° & S. squat = 15° L 8 P. = 4° with glasses O.U. + 4.


V O.D. 6/12 O.B. 6/12!!!

L° & S. squat = 12° L.

11th Aug '81


27 Aug '85 Has worn glasses wth frequent intermissions til a week ago.

V O.D. 6/12 = 6/12 + 1.5 O.B. 6/12 = 6/12 + 1.5

O.D. Int. Stab = 2° P. = 18° P with O.U. + 3.

12 Dec '87

O.D. Tentosty I.R.

28 Jan '88 Has worn glasses since operation. Does 6 squat either with

or w/o glasses. And Int. Stab can be induced by covering

one eye but not when glasses are on.
E.I. O.D. +2.25 O.S. +1.25 Angle K not taken

\[ V \text{ O.D. } \theta^\circ \text{ Squint } = 25^\circ \]

1st May '82

27 May '82 O.D. = 17^\circ L
5 June '82 O.S. = 5^\circ L
18 Oct '82 O.S. = 5^\circ L

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Has had asthenopia in reading for 6 months

E.I. O.D. +1.5 O.S. +0.5

\[ V \text{ O.D. } \theta^\circ \text{ Squint } = 4^\circ L \]

31 May '82

31 Dec '85 Has worn above glasses for reading. No strabismus at a

No insufficiency of covering either eye. Has still asthenopia when reading. Ordered Prox. glasses O.D. +1.5

15 March '87 Glasses has quite relieved asthenopia. No strabismus

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E.I. O.D. +2.75 Angle K not taken

\[ V \text{ O.D. } \theta^\circ \text{ Squint } = 25^\circ L \]

14 June '82

28 June '83 " = 21^\circ L \]

29 " " " " " " 0^\circ L

30 " " " " " 0^\circ L = 0^\circ with glasses

25 June '84 " " " " " 0^\circ L = 0^\circ L

\[ V \text{ O.D. } \theta^\circ \text{ Squint } = \frac{6}{18} \text{ O.S. } \frac{6}{18} = \frac{6}{18} + 3 \]
E.I. 05. m.taken angle K m.taken
V O.D \( \frac{6}{8} \) 08. \( \frac{6}{8} \)
\( L^\circ \) of Sprint = 50° L

30 Sept. '82
3 Oct. '82 ... = 8° L

E.I. 08. m.taken angle K m.taken
V O.D \( \frac{6}{8} \) + 1 08. \( \frac{6}{8} \) - 4
\( L^\circ \) of Sprint = 14° L

25 Oct. '82
27 Oct. '82 ... = 5° L
20 Nov. '82 ... = 7° L

E.I. O.D. + 8 2 + 2.5 1/66 08. + 8.2.1. 11/45 angle K m.taken
V m.taken
\( L^\circ \) of Sprint = m.taken

27 June '83
11 July '83 \( L^\circ \) of Sprint = 22° L
13 July '83
16 July '83 ... = 11°

29 Nov. '83 ... = 8° L = 0° with planes
31 Dec. '83 ... = 15° L = 0° + ... 0° with planes
2 Jan. '84 ... = 15° L = 2° + ... 8° + 8°

V O.D \( \frac{6}{8} \) = \( \frac{6}{38} + 6 \) 08. \( \frac{6}{8} = \frac{6}{128} + 6 \).

8 May '86 ... = 11° L = 0° P ...
13 Sept. '86 ...
22 Oct. '86 ...
18 Nov. '87 ...

V O.D \( \frac{6}{34} \) 08. \( \frac{6}{34} + 11/2 \) with E.I. L.
EI. O.D. +4.5 O.S. +5 Angle Ki Ad. taken
V mi. taken
L of Squint = 62° L = 65° P
= 44° L = 52° P. with glasses O.D. +1.5
Has worn glasses 3 years 24th Oct. +1.5 for 3 years

EI. O.D. +2 O.S. +1.5 Angle Ki Ad. taken
V mi. taken
L of Squint = 13° L
24th Oct. +2
31st Dec. 86
= 60° P = 72° P. with glasses V O.D. 6/18 O.S. 6/18
Was a man glasses for more time Previous 6/9 O.D. +2 O.S.
22 Jan. 87 L of Squint = 60° P = 60° P. with glasses V O.D. 6/24 O.S.

EI. O.D. +3.5 O.S. +1.5 Angle Ki Ad. taken
V O.D. 7/10 O.S. 6/9
L of Squint = 11° L
13 Apr. 82
19 July 82 V O.D. 6/60 +3
5 Sept. 85 V O.D. 6/18 = 6/18 +2.5
Int. Stab. = 28° L = 28° with minus glasses
= 22° = E.I. glasses

Polyesterkan Keratitis O.B. Shallow Cornea
EI. O.D. +3 Angle Ki Ad. taken
V O.D. 6/6 = 6/6 +1.5 O.S. 6/18 = 6/18 +1.5
L of Squint = 16° L O.P. = 8° L O.P. with O.D. +3.
When looking at near objects squint was made to alternate
but only with O.S. when looking at distance
E.I. 0u. + 3. Angle K 4/10 taken
O.S. L. of Squint = 16° L. = 26° P. O.D. L. of Squint = 28° P.
13th Dec.'83 0.S. Teryory 1 R.
14 Dec.'83 ... = -5° L. = 6° P. Argenares
30 Jan.'84 ... = 9° L. = 18° P. made L. 9 P. 0u. + 2.
30 Apr.'84 ... = 0° L. = 10° P.
(= 0° L. = 4° P. with glasses)
V O.D. $\frac{6}{12}$ mm = $\frac{6}{9}$ mm + 1.5 0.S. $\frac{6}{12}$ mm = $\frac{6}{7}$ + 2.

E I 0u. + 1.5 Angle K 4/10 taken
V O.D. $\frac{6}{9}$ mm 0.S. 7 at 3 m
L. of Squint = 28° L. 8 P. = 23° L. 8 P. with 0u. + 1.5

E.I. 0D. + 4.0 + 4.5/45 0S. + 5.5 + 5.5/45 Angle K 00.6°
V O.D. $\frac{6}{7}$ mm 0.S. $\frac{6}{5}$ mm
21st Dec. L. of Squint = $\{36° P. \} \{40° P. \}$ with O.D. + 4.5 0.S. + 6.
Por 14° L. P. 0D. + 4.5 0S.
Bandage 0.S. 20 min. in day.
9th Jan.'85 ... ... \{10° P. \} \{3° P. \}
V O.D. $\frac{6}{12}$ = $\frac{6}{6}$ + 5.

20 A.G. B. act-32 O.D. Int. Stab. Began 1 squint-act ?
E.I. O.D. 4/10 taken 0.S. + 3.5 + 1.5 G. 1° Angle K 4/10
V O.D. 7 at 1.5 0.S. $\frac{6}{9}$ mm = $\frac{6}{9}$ + 1.2 + 1.5 G. 1°
L. of Squint = 0° L. = 22° P.
= 17° P. with E.I. glass.
21. H.T. ac-12 0.8. Int. Stab began to squint ac-1 7

E I 0.D. +3 0.8. +4
V O.D. 6/18 0.8. 6/18
L of Squint = 31° L = 35 P

23 July 84 0.8. Tenuous J.R.
26 July 84 ... ... = 19° L = 21 P
30 July 84 ... ... = 18° L = 21 P = 18° P = 18° P with 0.D. +2 0.8.

7 Aug 84 ... ... = 21° L = 21 P = 15° L = 16 P with glasses
10 Aug 84 ... ... = 12° L = 17 P = 9 L = 16 P

V O.D. 6/18 0.8.

25 Aug 85 ... ... = 2° L = 8° P = 8° L = 2° P with new glasses

22. J.B.C. ac-13 35° 0.8. Int. Stab began to squint ac-1 4

E I. same as above glasses angle 150. 0.D. 2°
V O.D. 6/18 0.8. 6/18 with glasses
L of Squint = 27° P = 18° P with glasses

5 Aug 85 0.8. Tenuous J.R. Advancement
10 ... ... = 5° P = -3° P with glasses
30 ... ... = 15° P = 8 P

23. N. F. ac-12 0.8. Int. Stab began to squint ac-1 11

E I. +2 0.8. angle 150. 0.D. taken
V O.D. 6/18
L of Squint = 33° L = 15° P with O.D. +2.
24. G. H. accl. 9 O.D. Int. Strob. Began t. squint accl. 7
V O.D. 34 O.S. 33
Lsq of squint = 48° 2' = 45° P
= 35° 2' = 38° P (with glasses O.D. +3.5 O.S. +3.5)

29th May 85
O.D. Tendolgy Int. Advancement E.I.
1 June 85
O.D. Tendolgy Int. Advancement E.I.
2 June 85... = -4° 2' = 0° P
= -4° 2' = 0° P with glasses
25th March 86... = -4° P (w. angle k) V O.D. 6° 7'
= -6° P with glasses

Give up glasses for L. use them only for music & reading
26 Apr. 87 V O.D. 6° 7' = 6° 7' + 2. O.D. 1½°

25. L.T. accl. 24 O.D. Int. Strob. Began t. squint accl. 2
E.I. O.D. +1.5 O.S. +2.5 Angle 10 A. O.D.
V O.D. 7 at 1° 50' O.S. 7½ = 6° 7' + 1.5°
Lsq of squint = 44° 2' = 48° P
(= 32° 2' = 39° P with glasses O.D. +2.5°)

17 June 85
Prescription Rape O.D. +15° O.S. +2.5°
Pry O.D. +15° O.S. -2°
29 July... = 32° 2' = 44° P
(= 29° = 38° P with Royal glasses) V O.D. 7 at 2° 50'
12 Aug. 85
O.D. Tendolgy Int. Advancement E.I.
31 Aug. 85... = 8° P
(= 6° P with glasses)
6 Nov. 85... = 13° P
(= 8° P with glasses) V O.D. 7 at 5°

26 C.B. accl. 4 O.D. Int. Strob. Began t. squint accl. 3
E.I. O.D. +3. Other particulars not noted.
   E I O.D. +4. O.E. +0. Angle K L A - taken
   V. A l l - listed
   L e. 6 Squint - = 36° P = 34° P with O U. +6°
   28 Oct. 65
   19. Dec. 87 = 10° P = 3° P with O U. +5°

   E I. O.D. +2.5 O.E. +3. Angle K O D. 6° O.B. Color only
   V O.D. 6/78 unimpaired plan O.B. 7 at 6 M
   L e. 6 Squint - = 34° P = 20° P into E I plane,
   28 Oct. 65 O.B. Temporally L.R. eye rotated out by a stitch to curves
   31 ... Ordinal Par. plates O.U. +2.5 A.F. glass figure
   18 Dec. 86 L e. 6 Squint - = -2° P = -9° P with glasses
   V O.D. 6/211. O.B. 6/65
   [Diagrams and calculations]
   This diagram shows the ability [diagram]
in 68. two days before operation then days after 17 weeks later. The ability of O.B. was taken once for comparison.

   Has worn for two years glasses figure O.U. +4.5 X 2 6.5 6 3.25
   The Squint is noted to have been removed.
   E I. O.D. +3. Angle K L A - taken
   L e. 6 Squint = 13° P = 5° P with O U. +3°

   E I. O.D. +3.5 Angle K L A - taken
   V O.U. 6/6
   L e. 6 Squint = 45° P = 35° P with O U. +3.5
   26 May, 86
   23 Feb. 87 ... = 45° P = 29° P with glasses)
31. M.R. act. 5½ (Twins birth of No 30) 08 Int. Stab. Began t.squint act 4\(\frac{3}{4}\)
E.I. 04. + 3\(\frac{1}{2}\)° Angle K A.M. taken
V O.D. \(\frac{6}{15}\)
L\(\frac{8}{9}\) of Squint = 41° P = 33° P with O.D. + 3\(\frac{1}{2}\)°
26 May 86 ordered glasses 2 D.P. O.D. + 3\(\frac{1}{2}\)°
23 Feb 87 . . . . = 43° P = 25° P with glasses

32. M.R. act. 7 O.D. Int. Stab. Began t.squint in infancy
E.I. O.D. + 2.5 O.D. + 2° Angle K A.M. taken
V O.D. \(\frac{6}{15}\) O.D. \(\frac{6}{15}\) mm
L\(\frac{8}{9}\) of Squint = 40° P = 35° P with E.I. glasses
12 June 86 ordered E.I. glasses 1 D.P. for
20 Oct 87 . . . . = 41° P = 30° P with E.I. glasses
V O.D. \(\frac{6}{12}\) O.D. \(\frac{6}{12}\) mm

33. J.P. act 5½ O.D. Int. Stab. Began t.squint act 3½
E.I. O.D. + 3.5° Angle K O.D. 6°
V O.D. \(\frac{6}{15}\) O.D. \(\frac{6}{15}\) mm
L\(\frac{8}{9}\) of Squint = 31° P = 32° P
13 Sept 86 O.D. Tactotomy J.R.
15 Sept 86 . . . . = 4° P = 4° P
18 Sept 86 . . . . = 6° P = 6° P
4 Feb 87 . . . . = 16° P = 16° P
18 Feb 87 . . . . = 5° P = 9° P
(= 7° P with O.D. + 4.5°
E I D.P. O.D. + 4.5°
(= -6° P with glasses) = angle K

34. J.W.Q. act 6 O.D. Int. Stab. Began t.squint act 4½
E.I. O.D. + 4.5° Angle K A.M. taken
V O.D. \(\frac{6}{36}\) O.D. \(\frac{6}{36}\) mm
L\(\frac{8}{9}\) of Squint = 22° P = 15° P with O.D. + 3°
35. A.S. act. 4  O.D. Int. Strob.  Began to Squint act. 2 y. 11 m.
E.I.  O.D. +4  O.S. +3  Angle K O.D. 5°
V M. tested
L° of Squint = 35°L = 38°P
= 28°L with glasses O.D. +3.

8 Feb '86  O.D. Tempoty J.R. Advanced 8.R. O.S. Tempoty J.R.
14 Jul '86 L° of Squint = -10°L
16 Apr '86 ... ... = -10°L  reduce glasses 0.4  O.D. -2.
15 Sept '87 ... ... = -14°L = -12°Pst.
7 Dec '87 ... ... = -14°L = -12°P.

36. M.T. act. 80  Alternating Int. Strob.  Began to Squint act. 2
The Squint is all-present  L° by  only  Pst.  Usually O.D.
E.I.  O.D. +2.5  Angle K O.D. 4°
V  O.D. 6/6  O.S. 6/6
L° of Squint O.D. = 17°P = 11°P with 0.1 + 2.5.
3 Dec '86  reduce glasses 0.4  O.D. +2.5
20 ... ... ... = 39°P = 22°P with glass 0.5  O.D. +2.
27 May '87 ... ... = 32°P = 17°P.

37. M.T. act. 9  O.D. Int. Strob  Began to Squint act. 3
E.I.  O.D. +2.5  Angle K O.D. 3°
V  O.D. 6/6  O.S. 6/6
L° of Squint = 23°L = 25°P
= 23°P with 0.1 + 2.

38. J. O'B. act. 8  O.D. Int. Strob  Began to Squint act. 6½
E.I.  O.D. +4.  Angle K M. taken
V  O.D. 6/6  O.S. 6/6
L° of Squint = 20°L = 22°P
= 19°P with 0.4 + 4.
   "Only squints for Pt 1½ at most for long.
   E.I. O.U. +4.5  Angle K O.U. 6°
   V O.D. 0.5  A1: improved lens 0.8 0.5
   \( L^2 \) of Squint  = 60°  = 2° P
   \(-6\) P with 0.4 + 4 = angle K

   E.I. O.U. +3  Angle K A1: Tolaen
   V O.D. 7 A1 0.25 0.8
   \( L^2 \) of Squint  = 20° P = 11° P with 0.4 + 3.
   11 Dec 87 0.8 Tonometer I.R.
   13 ... = 0° P

41. M.F. act 7½ o.b. Int. Stab. Began t-squint act 7½
   E.I. O.D. +4 0.8 +5  Angle K O.D. 6° 0.8 6°
   V O.D. 0.5 0.8
   \( L^2 \) of Squint  = 18° P = 18° P
   (= 18° 15° P with O.D. +4 0.8 +5)

42. C.B. act 20 o.d. Int. Stab. Began t-squint in infancy
   V A1: Tolaen
   \( L^2 \) of Squint  = 38° P = 4° P
   12 Feb 87 0.D. Tonometer 2.9  Advancr. F.R.
   19 Feb 87 ... ... 0° P

43. J.G. act 2 Alternating Int. Stab. (chiefly O.D.) Began t-squint act 1
   E.I. Angle K & V un-tolaen
   \( L^2 \) of Squint  = 25° P (a little uncertain)
   10 May 87 0.9 Tonometer I.R. 8
   17 May 87 O.D.  Seems straight (too restless to examine fully
44. J. C. alt. 7 0.D. Int. Strob. Began 1-squint in infancy.

E.I. 0.D. +1.5  

Angle K 0.D. = 5°
V  

A.- tested
L  

8 Squint  = L 8 P 25°

7 May '87  

0.D. Tendony 1 R. Advanced E.R.

10 May '87  

= slight divergence

2 July '87  

= L 9 P -5° = angle à

Has suffered for years from Asthenopia. Has chronic Balanitis. Was circumcised on 9th June. Asthenopia has since disappeared.

45. J. McW. alt. 20 0.B. Int. Strob. Began 1-squint 'act 17° of hex. in 0.B.  

Now in 0.B. Sight has been bad since. No cause apparent.

E.I. 0.B. +2.5
V 0.D. 6/6  

0.B. 6/6
L  

8 Squint  = L 8 P 10°

46. T. C. alt. 38 0.B. Int. Strob. Began 1-squint 'act 12 after alt.  

in 0.B. Sight failed partly afterwards (Cataract)

E.I.  and angle K A.- tested
V 0.D. 6/6  

0.B. letting hand
L  

8 Squint  = 5° L  = 20° P

11 June '87  

Cataract extracted without sedation

25 June '87  

L 8 Squint  = 5° L  = 15° P  

V 0.B. 6/6 +13  

0.B. Tendony 2 R.

V 0.B. 6/6 +13 = 22 & R.

25  

#  = 0°

47. T. M.C. alt. 11 0.B. Int. Strob. Squinted from infancy.

E.I. 0.B. +5 0.B. +6  

Angle K A.- tested
V 0.B. 6/6  

0.B. 6/6
L  

8 Squint  = 16° L  = 23° P

25 June '87  

0.B. Tendony 1 R.

30 June '87  

= 7° P
48. R.C. act 23. O.F. Int. Stirb 1 "as long as he can remember"


Vor. 0° = 15' + 1.25 = 0°. 7 at 0.75 = 7 at 3' - 4'.


27 Aug. '87

18 Aug '87 = 15° L° D. P. Ubility {O.D. 2. M. 55°

20 Aug. '87

23 " = -5° L

30 " = 0° L ordered L° D. P &c, 1+15°

25 Aug. '87 = -10.2° L. Angle K which is now divergent.

---

49. B.A act 16. O.B. Int. Stirb. Began to Squint act 15. 3. 4 while suffering from Phosphor. Conjunctivitis. Cure was effective.

E.I. Angle K and V not taken.

L° S. Squint = 22° L° D. P

20 Aug. '87

25 Aug. '87 = 20° L° D. P

27 Aug. '87

1 Sept. '87 = 0°


V. O.D. 2. O.F. 6.

L° S. Squint = 25° L


E.I. Angle K not taken.

V. O.D. 6. 30 inch. in infancy. from 0.8. 6. 88 = 0° + 2.6 vision.

L° S. Squint = 17° P

28 Aug. '86

31 Aug. '86 = only occasionally present.
   V M-A. Telson

   O.D. L° 2 Squint = 42° D P.
   28 Oct. 86

   1 Nov. 86 O.S. M Stab = 35° L
   16 Nov. 86 O.S. M Stab = 30° L
   18 Nov. 86 O.S. M Stab = 18° L
   25 Nov. 86 = 14° L

   E.I. and Angle K L.A. Tabern.
   V O.D. 6° = 6° + 1. O.B. 6° = 6° + 2.
   L° 2 Squint = 9° L D P
   16 Dec. 86

   17 Dec. 86 = disagree.
   18 Dec. 86 = 5°
   21 Dec. 86 = 4°

   an inflammation of the eye.
   E.I. O.C. +3.5 Angle K L.A. Tabern
   L° 2 Squint = 31° P
   18 Dec. 86

   28 Dec. 86 = 2° P
* 26th March 59. QH. Art. Stab = 26°2 - 25°P
  24 " " " " " " = 31 = 26

QH. Territory I.R. Advance, 8R
55. W. M. act. 22 O. D. Int. Stab. Began to Squint - act 7
   E. I. C.U. +3. Angle 4 0. D. 1° 08. 2°
   V C.U. 6/6
   L° L° Squint = 33° L = 39° P
   (= 26° L = 30° P with C.U. + 3)

27th 1888

13 March 88 " " = 21° L = 26° P
   (= 21° L = 26° P with C.U. + 3)

15 March 88 O. D. Fortune J. R.

20 March 88 " = 15° L = 19° P
   (= 14° L = 18° P with C.U. + 3)

1 May 88 " = 0° P = 0° P (10° off Stab in darkness coming)
   = 1° L = -1° P (parallel on evening)

   E. I. O. D. +2 C.U. 08. 3° 0° +3. 2 +2 6 11° Angles 4 O. D. 3°
   V O. D. 5/8 0. B. 5/7
   L° L° Squint = 49° L = 49° P
   (= 39° L = 42° P with C.U. + 3 ½)

15 March 88 O. D. Fortune J. R. Advance D. R.

13 April 88 " = 18° P Ordered At 9 P.M. 6 4 3

14 April 88 " = 0° L Ordered To go to E. I. Glanno

2 May 88 " = 18° L = 22° P
   (= 5° L = 3° P with E. I. Glanno)
   V O. D. 6/12 = 6/12 + 2 6 11° 0. B. 6/12 = 6/12 + 3 2 + 2 1°

57. S. S. act. 16 O. S. Int. Stab. Began to Squint - act 7
   E. I. O. D. +4 0. S. +3. 5 Angle 2 R. Taken 4
   V O. D. 6/8 = 6/8 + 2 0. B. 6/6 = 6/6 + 1. 25
   L° L° Squint = 40° P

8th Nov 88 O. S. Fortune J. R.

15 Nov 88 " = 12° P
Fitzgerald

Maxwell

\[ \text{V O.D. 7 at } 45^\circ = \frac{6}{78} \text{ c. } 2.7 \text{ c. } 2.9 \% \]

\[ \text{L}\text{c. f. squint} = 52 \text{ } L = 48^\circ \text{ P.} \]

26 Apr' 88

\[ \text{O.D. Tension 9 R. Abnormal L. R.} \]

1 May' 88

\[ \text{O.D. 9 R. Abnormal L. R.} \]


\[ \text{V O.D. 7 at } 45^\circ = \frac{6}{78} \text{ c.} \]

26 Apr' 83

\[ \text{O.D. Tension 9 R.} \]

1 Nov' 83

\[ \text{V O.D. } \frac{6}{78} \]

\[ \text{E.I. and Angle K most taken} \]

60. A. G. act. 12. O.S. Int. Stab. Began to squint—act 7 after

\[ \text{Phthisis} \]

\[ \text{E.I. } 0.4 \text{ c.} \]

\[ \text{V O.D. } \frac{6}{78} \text{ c.} \text{ at } 0.3 \text{ c.} \]

\[ \text{L}\text{c. f. squint} = 25^\circ \text{ P.} \]

30th Sep' 84

\[ \text{O.D. Tension 9 R.} \]

4 Oct' 84

\[ \text{act} = 10^\circ \text{ P. normal glasses at. L. DP } + 6.5 \text{ R.} \]

7 Sept' 86

\[ \text{act} = -5^\circ \text{ P. } -10^\circ \text{ P. with glasses,} \]

5 Oct' 86

\[ \text{act} = -8^\circ \text{ P. } -2 \text{ P.} \]

\[ (-12^\circ \text{ P. } -5 \text{ P. with glasses}) \]

\[ \text{She is still wearing glasses L. DP and cannot give them up.} \]

\[ \text{V O.D. } \frac{6}{78} \text{ c.} \text{ at. glasses.} \]

EI 0.D. +2.5 0.B. +1.5 Angle K NA taken

V OD. $\frac{6}{36}$ 0.B. $\frac{6}{11}$

$L_k$ of squint = $18^\circ P$

Oct 34

- = $-8^\circ P$

Oct 44

= again convergent. Ordered glasses $-2D +1.5$

Dec 84

= 0 $L_k$ = $-8^\circ L$ with glasses

62. C.7. act-17 O.B. M-Stab. Began to squint-act?

EI & Angle K NA taken

V OD. 0.B. 7 act-3. 0.D. $\frac{6}{0} = \frac{6}{11} + 1.75$

$L_k$ of squint = $30^\circ P$

Oct 34

+6 $L_k$ = $23^\circ P$

Oct 10

63. R.D. act-6/ O.B. M-Stab. Began to squint-act?

EI 0.D. +5.8 0.B. +4.5 2+1.81 1° Angle K OD. 6°

V 0.D. $\frac{6}{18}$ 0.B. $\frac{6}{36}$

$2\frac{1}{2}$ $L_k$ of squint = $32^\circ L = 35^\circ P$

Dec 23

M-Stab

Dec 30

= 0 $L_k$

Ordered glasses $-2D P 0.D. +5.0 B +4$

Jan 18

= $-6^\circ L$ angle to do without glasses.

64. K.C. act-13 O.B. M-Stab. Has squinted one time. Remembered

V OD. $\frac{6}{20} = \frac{6}{20} + 1.05 + \frac{6}{78}$

EI and angle K NA taken

$L_k$ of squint more than $40^\circ$ more in this way

4th 85

= 0 $L_k$

Order glasses $-2D P 0.D. +5.0 B +4$

Feb 14

= 26 $L_k$

O.S. Ent. Mobility 77°

Feb 15

O.D. 0.S. M-Stab 1st B.R.

18th 85 Squint closes to OD. = 27°

Stitches seem to have closed

Ordered glasses $-2D P 0.D. +1.5 + 1$. $\frac{6}{2} L_k$

Nov 10

= 20° L = 10° with glasses. OD 40

4th 85

V 0.B. $\frac{6}{20}$ O.B. $\frac{6}{20}$ with glasses. Mobility $\frac{60}{82}$
65. C 00° act. 11. 08. Br. Stuab. "Began 1 sprint 10" oftener inflown in 05.
   EI O.D. +6. O.S. +5. Angle K A.D. taken
   V O.D. 60° = 60° +1.5 08. Feb. 1.5
   1° 0' sprint = 40° 0 08. Est. Ast. 20°
   26 June '85
   30 June '85 = 25° 0 08. Territory J.R. Advance J.R.
   6 Aug. '86 = 6° 0 08. Territory J.R.

66. M.M. act. 7. O.D. M. Stuab. "Began 1 sprint act. 2"
   EI O.D. +4. O.S. +3. Angle K A.D. taken
   V O.D. 60° 1 0.5° +1.5
   1° of sprint = 28° 0 08.53 0 08.53
   3° 0' 055
   6 Dec. '85
   = 12° 0 08.53 0 08.53

67. P.M. act. 5. Alternating M. Stuab. "Began 1 sprint act. 2"
   EI O.D. +2.5. O.S. +3. Angle K A.D. taken
   V O.D. 60° 0 08. 07.11 10
   O.D. 0' sprint = 26° 0 08.53
   16 Feb. '86
   27 Feb. '86 = 26° 0 08. Territory J.R.
   18 Dec. '86 = 16° 0

68. A.B. act. 2 1/2. O.D. M. Stuab. "Began to sprint - 1/4"
   EI. O.D. +4. Angle K A.D. 3°
   V A.D. taken
   1° of sprint = 29° 0
   23 Feb. '87
   2 March '87 = 13° 0
   16 March '87 = 21° 0 08. Territory J.R.
   23 March '87 = 8° 0 4° + 4° Reduction 26° + 3°
13 Apr. '87 = 6° 0 2° with covers Continue covers, D.P.
22 Apr. '87 = -3° 0 0 0 0
(= -3° 0 0 0 with covers)
V & N. Tendent
L° of squint = 25° P
15 Dec ’86
O.B. Tendentory J. R.
18 Dec ’86 " " " = 5° P P
12 May ’87 " " " = 10° P P
15 May ’87 O.D. Tendentory J. R.
26 May ’88 " " " = -5° P P. Probably correct K

V O.D. 6/60 O.B. 6/60
L° of squint = 36° P
(= 30° P with O.D. + 4)
29 Jan ’88
O.D. Tendentory J. R. Alternate E. R.
3 Feb ’88 " = 7° P
(= 4° P with O.D. + 4)
10 Feb ’88 " = 9° P
(= 6° P with E.I. glasses) Reduced three P. P.
5 May ’88 " = 13° P = 17° P
(= 10° P = 9° P with glasses) V O.D. 6/60 = 6/60 + 5
6 May ’88 O.B. Tendentory J. R.
7 May ’88 = -4° P = -4° P
(= -7° P = -8° P with glasses) Continue Bangers O.D.
9 May ’88 = -5° P = -6° P
(= -5° P = -6° P with glasses) 6th Bangers.
Patient was now ordered to orthoptic exercises several times a day with a standardised 3 pictures whose distance could be varied.
71. V.W. act. 11  O.D. Ext. Stab  Began 1-squint act - 9
    E.I. 0U. + 2
    V O.D. \[\frac{6}{9} + 1\] O.B. \[\frac{6}{9} + 1\]
    Le if Squint - \(-18^\circ L\) = \(-4^\circ P\) = angle K

17 May 86  
O.S. 0U. + 1
\(-13^\circ L\) = \(-4^\circ P\)


Has a then 8pm  Can't read for more than an hour

E.I. 0U. + 1
    Angle K 0U. + 5°
    V O.D. \[\frac{6}{9} + 1\] O.B. \[\frac{6}{9} + 1\]
    Le if Squint - \(-30^\circ P\)

While
\[\begin{align*}
03^\circ 39' & \quad \text{out-} 50° \\
08^\circ 37' & \quad \text{in-} 56°
\end{align*}\]

13 Aug. 87  O.B. Testing E.R. Advane - 5 J.R.

16 Aug 87  
\(-5^\circ P\) has crossed diplopia. Images at
6 meters are 200 m. apart. Time in: Ext. Stab 3 less than 1°
about 30 minutes *

27 Aug 87  Diplopia now only occasional I can be overcome with
    V O.D. \[\frac{6}{9} + 1\] O.B. \[\frac{6}{9} + 1\] without glasses

28 Oct 87  Has not been double for 6 weeks asthenopia much less
    O.B. diverger - 6° = angle K

73. N.H. act. 10  O.D. Ext. Stab  "Has always Squinting" 
    E.I. 0D. - 7  0S. +1.5
    Angle K 0D. B°
    V O.D. 7 at 1.25 M. interior glass 0B. \[\frac{6}{9} + 1\]
    Le if Squint - \(-15^\circ L\) = \(-5^\circ P\)

21 Dec. 86  
O.D. Testing E.R.

30 Dec. 86  
\(-3^\circ L\) = \(-3^\circ P\) = angle K

30 Nov. 86  
da  da
74  M. K  act. 26  Alternating Esot. Stab.  Began 1 squint as a child  
O.D. acutely squint
E.E. O.D. 16  O.S. 12  9 2  15
V O.D. 58  16  0 5  2  1  8
O.D. 16
O.D. 1

26. July '87
10 March '87  O.D. still diverges  O.S. Temporally 8 R
25. March '87  V. O.D. 1/2  12  0 5  2 2  1  9  6
28. March '87  O.D. Est. 8 R  = 13° 2  = 5° 2  in temp. planes.

N.B. The diminution in the glasses required to cancel the 
ophoria is interesting. It is probable that the decreased 
muscle force for Convergence was associated with a smaller 
accommodative effort.

75.  P. D. act. 40  Paralyses Ist. R.  O.D.  Notice recently increasing 
E.E. High diplopia over 12. Angle K  O.D. 4°
has homonymous diplopia for distance and close.
Lg. of squint  = +10° 2  = 0° 2

25 June 86  O.D. Temporally 9 R
1 July 86  = +1° 2
7 Sept. 86  = +9° 2  still hom. diplopia through the 
strabismus is less than angle K.

76.  O. P. act. 54  Paralyses E. R.  O.S.  Began 1 squint 10 months ago.
V O.D. 58  O.S. 58
O.B. Int. Stab  = 28°  mobility 10°
17 March '85  To have constant Current to temples daily
2 Apr. '85  Mobility outward has gradually increased to 17°
7 "  No further improvement since 2 Apr.
O.B. Temporally 8 R
10 "  O.S Int. Stab  = 10°  mobility 17° 90°
14 "  "  = 0°  mobility 17° 90°
15 "  "  = 0°  mobility 17° 90°
<table>
<thead>
<tr>
<th>Angle</th>
<th>Ext.</th>
<th>Int.</th>
<th>O.D.</th>
<th>Angle</th>
<th>Ext.</th>
<th>Int.</th>
<th>O.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strabismus</td>
<td></td>
<td></td>
<td></td>
<td>Do with Lens</td>
<td></td>
<td></td>
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<tr>
<td>Mobility</td>
<td></td>
<td></td>
<td></td>
<td>Mobility</td>
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</tr>
<tr>
<td>A</td>
<td>R</td>
<td>P</td>
<td>A</td>
<td>R</td>
<td>P</td>
<td>A</td>
<td>R</td>
</tr>
</tbody>
</table>

**Name:** M. P. B.

**Age:** 18

**Remarks:**

This chart above on the effect of hope was graphically the amount of squint in O.D. 
6th induced one in O.S. also the Mobile.

I had them drawn from this purpose.

**Amplitude of Convergence in Metre Angles:**

<table>
<thead>
<tr>
<th>Date of Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Nov 1886</td>
</tr>
<tr>
<td>3 Dec</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>6 Jan 1887</td>
</tr>
</tbody>
</table>

**Date of Treatment:**

| 17 Nov 1886 |
| 8 Dec      |
| 12 Jan     |

V.O.D. $\frac{6}{7}$ O.B. $\frac{6}{20}$ Angle 10 M.A. telea
O.B. £ of squint = 20° Secondary 2nd O.D. = 20°

16 May 85
21 May 85

O.B. Advancement 8 S.R.

---

78. R.A. age 26. Insufficiency of Convergence. In 2 years has had Asthenopia.

E.I. O.D. +0.5 O.B. -1.5 1-1. -- Angle K O.D. 4° O.B. 9°

4 Nov 85 O.D. Tendon ? S.R.
12 --- Angle K O.D. In 54° O.B. In 56°
18 --- Angle K O.D. out - 55° O.B. out - 55°

---

79. P.B. age 18 Alternating Divergent Strabismus following an operation on each eye for M.Plastab.

When "just a child" had Int. Strab in O.D. A surgeon performed an operation on each eye. For seven years has had crossed diplopia & Ext. Strabismus usually in O.D. But patient can fire with either eye as well. Before operation the sight of O.D. was defective. It has since gradually improved and is now nearly as good as O.B. This makes the diplopia all the more distressing than formerly. As well as he keeps the head turned towards the right. The Corneal of O.D. is very punken.


V.O.D. $\frac{2}{20}$ O.B. $\frac{2}{20}$ +1.25 O.B. $\frac{2}{20}$ = +2.75

Can see his arm and return hand in O.D.

He has a slight ptosis and ptosis paresis in O.D.

9 Nov 86 L$^2$ of Squint in O.D. = 46° in O.D. = -35°

17 Nov 86 O.D. Tendon 8 S.R. Advanced 1 R.

26 Nov 86 O.B. $\frac{2}{20}$ O.B. $\frac{2}{20}$
<table>
<thead>
<tr>
<th>Strabismus</th>
<th>Angle</th>
<th>Int.</th>
<th>Ext.</th>
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<table>
<thead>
<tr>
<th>Doc with Lens</th>
<th>Angle</th>
<th>Int.</th>
<th>Ext.</th>
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<thead>
<tr>
<th>Mobility</th>
<th>Angle</th>
<th>Int.</th>
<th>Ext.</th>
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<tr>
<th>Name</th>
<th>Age</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. P. B.</td>
<td>18</td>
<td></td>
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</tbody>
</table>

Amplitude of Convergence in Metre Angles:

<table>
<thead>
<tr>
<th>Date of Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Jan 1897</td>
</tr>
<tr>
<td>31 Jan</td>
</tr>
<tr>
<td>5 May 1897</td>
</tr>
<tr>
<td>20 Oct 1897</td>
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</tbody>
</table>

Treatment (Operation, Spectacles):

<table>
<thead>
<tr>
<th>Date of Treatment</th>
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<tbody>
<tr>
<td>12 Jan 1897</td>
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<tr>
<td></td>
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</tbody>
</table>
Dec 26. Has still crossed diplopia. Image of O.D. is below as well as to the left— with a pruse of 8° base down and heading 22° base in before O.D., the images are put together but go circling round each other and will not fuse. 

O.D. Tendency S.R.

Dec 29

Vertical diplopia O.D. straight above O.D.

Dec 30. Has still crossed diplopia. By an effort can bring image of O.D. in line with O.S. but below it. By a greater effort can bring image of O.D. 1 right side, but in neither of these cases does he see plainly (probably from excessive accommodation.)

Has still crossed diplopia (nearly corrected by a prism of 6° base down and the 25° base in.

O.D. Tendency S.R. advance 1/2° R.

Jan 6

1st Jan. Est. A.D. = -18° O.S. = -21°

-19° = -21°

Jan 21

Mar 7

Feb 28

Has for several months been able to keep the images together, but that if O.D. slopes to the left. The image of O.D. is stationary by est. Str. A.D. = -6° O.S. = -15° = angle of fixation respectively.

Tilt of O.D. is removed by binocular vision restored by rotating O.D. with 2 fixation patches thus. On projecting the angle of inclination on a black board this was found to measure exactly 15°. The patient, who is a mathematician, had mentally estimated also at 15°. He says that since another eye when the images first came together the angle was 30°.
<table>
<thead>
<tr>
<th>Age of Squint</th>
<th>Treatment</th>
<th>V. before Treatment</th>
<th>V. after Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Squinting eye</td>
<td>Sound eye</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>6/12</td>
<td>6/9</td>
</tr>
<tr>
<td>17</td>
<td>Operation &amp; Glasses</td>
<td>7/12</td>
<td>6/9</td>
</tr>
<tr>
<td>31</td>
<td>Operation &amp; Glasses</td>
<td>7/12</td>
<td>6/9</td>
</tr>
<tr>
<td>22</td>
<td>Operation &amp; Glasses</td>
<td>7/12</td>
<td>6/9</td>
</tr>
<tr>
<td>9</td>
<td>Operation &amp; Glasses</td>
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<td>6/9</td>
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<td>10 8/12</td>
<td>Operation &amp; Glasses</td>
<td>7/12</td>
<td>6/9</td>
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Statistics and Deductions from the preceding Cases

There are 70 Cases of Convergent-Strabismus, 4 of Divergent-Strabismus
3 of Paralysis of the 3rd. Nerve., one of Insufficiency of Convergence
3 of Divergent-Strabismus resulting from a previous Paralysis of
Convergence.

Only the Cases of Convergent-Strabismus are sufficiently numerous
for Statistical purposes.

35 are male 34 are female. In 32 the right-eye is affected in 34
the left; and in 4 cases the Squint alternates.

It would therefore appear that each eye and both sexes are equally
liable to this affection.

Age at first appearance / Squint-averages 4 years and 4 months.

In 21 Cases it began from 0 - 3 years

- 18 - 3 - 6 -
- 8 - 6 - 9 -
- 2 - 9 - 12 -
- 1 - 12 - 15 -
- 2 - 15 - 18 -

In 18 cases the age of commencing was not exactly ascertained.

Where it came on 0 - 3 years average V in squinting eyes in Cases = $\frac{16}{60}$

- 3 - 6 -
- 9 -
- 10 -
- 8 -

Therefore the early appearance of Squint does not seem to be
associated with worse V than when it comes on later.

It would however appear from comparing the history of the first
with that of the second group, that when the Squint develops late
it is more likely that a greater improvement in vision will
result from operation or Spectacles than in those cases where
the Squint appeared early.

Again if the age at which the Squint first appeared be disregarded,
but only the number of years that it has existed be considered, it
would appear from the table opposite, that the vision in the squinting
is not worse in cases of old standing but that a greater improvement will here also result from operation or glasses in the more recent cases.

In the squints of over 8 years standing the average V before treatment was \( \frac{92}{60} \) improved to \( \frac{182}{60} \) i.e. it was improved 2 times. In those of less than 8 years standing it was improved from \( \frac{82}{60} \) to \( \frac{90}{60} \) i.e. it was improved \( 2 \frac{1}{2} \) times.

It will be observed that where glasses only have been worn the improvement in some cases has been considerable. This fact is admitted by most observers. It has however been the custom hitherto for some time to discredit the theory of amblyopia exanopsia and to attribute the improvement in V after operation to the glasses which are usually worn to increase the effect.

In two of my cases no glasses were used either before or after operation, and in each of these the V was found to have improved. There are several other cases I remember but notes of which I cannot obtain whose V was also improved by operation alone. In connection with this subject it is interesting to note in Cases No. 21 and No. 70 that while the good eye was bandaged after the second operation the V of the squinting eye improved in the first case in two days from \( \frac{68}{70} \) to \( \frac{6}{10} \), while in the second after three days bandaging it improved from \( \frac{6}{10} \) to \( \frac{5}{12} \). Glasses were not worn during this time.

I therefore contend that improvement in vision may follow either an operation or the use of glasses and that where both methods are employed it is impossible to say how much of the improvement is due to each. I think however that glasses alone produce a greater effect than operation alone.

From the above one would be also led to understand that all by those who believe in "amblyopia exanopsia" and those who do not, that improvement in vision can only occur when the squint is cured or only occasionally present. But some of my cases show that merely a diminution of the squint-
<table>
<thead>
<tr>
<th>EI</th>
<th>Squint in Sound</th>
<th>L of Stock</th>
<th>P</th>
<th>do with EI Visional Reduction P.</th>
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<td>33°</td>
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<td>5</td>
<td>4</td>
<td>36°</td>
<td>10°</td>
<td>7°</td>
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</table>

**Average:** 30° 33° 23° 23° 13° 9°

7 in L & P Together Reduction = 11°
even where considerable convergence remains, may be followed by improve-
ment. Case No. 57 is an example of improvement in vision following operation alone. The vision improved from 7/30 to 10/6. The angle of squint being 19°, it was cut in half at the end of treatment. The original amount was unfortunately not measured. Case No. 15 is an example of improvement following the use of glasses alone. The vision improved from 7/40 to 10/35 (without glasses), while the angle of the squint actually got larger, having increased from 10° to 28°.

The refraction in all these cases was tested by the retinoscope, and in most this was confirmed by retinoscopy. Its amount is stated in the proceeding cases by the sphenoid and cylindrical glass required to correct, but in the table opposite, for the sake of simplicity, the number of the cylinder when present is halved and added to the sphenial; thus +3.2 +2.9 is put down as +4.

The average refraction of the squinting eye is +3.6, and of the sound eye +3.4. In six of these cases the refraction is lower in the squinting eye. In two of these the vision is lowered by astigma-
tism, in one the squint is alternating, in one the squint eye is myopic -4, which makes it practically amblyopic, the squint being determined by the hypertropia in the sound eye. In one case no explanation is apparent.

Case No. 58 is not included in this list. Compound myopic astigmatism is present in each eye with a large staphyloma posterior. It is therefore probable that he began life as a hyper-
metropia.

By referring to the table it will be seen that where the average refraction of the sound eye is above 3.5, the average L. angle is 30.7°, the P. 33.2° and the difference therefore 2.5°. The average reduction from glasses is 11°. In cases where the refraction of the sound eye is below 3.5, the average L. angle is 21.7°, the P 27° and the difference therefore 5.3°. The average reduction from glasses is 6.5°. These figures show that the amount of the squint varies directly with the degree of hypermetropia. Moreover the fact that
<table>
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<th>No.</th>
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<th>Refraction</th>
<th>Glasses worn</th>
<th>L. of Squint</th>
<th>Immediate effect of glasses</th>
<th>Ultimate effect of Do.</th>
<th>Time glass worn</th>
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<td>?</td>
<td>6/18</td>
<td>3/3</td>
<td>3/3</td>
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<td>L. P</td>
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<td>17°</td>
<td>5°</td>
<td>7°</td>
<td>4 weeks</td>
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<td>9/25</td>
<td>8/5</td>
<td>3/3</td>
<td>11°</td>
<td>8°</td>
<td>4 months</td>
<td>24°</td>
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<td>7°</td>
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<td>21°</td>
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<td>6/4.5</td>
<td>6/4.5</td>
<td>36°</td>
<td>38°</td>
<td>10°</td>
<td>14°</td>
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<td>4/4</td>
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<td>48°</td>
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<td>8.8</td>
<td></td>
<td></td>
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<tr>
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<td>6/6</td>
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<td>3.5/3.5</td>
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<td>25°</td>
<td>45°</td>
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<td>9 months</td>
</tr>
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<td>31</td>
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<tr>
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<td>2.5/2.5</td>
<td>40°</td>
<td>35°</td>
<td>41°</td>
<td>30°</td>
<td>10 months</td>
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<tr>
<td>36</td>
<td>8½y</td>
<td>6/6</td>
<td>2.5/2.5</td>
<td>2.5/2.5</td>
<td>17°</td>
<td>11°</td>
<td>39°</td>
<td>22°</td>
<td>2½ weeks</td>
</tr>
<tr>
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<td>6.5/6.5</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>69</td>
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<td>2°</td>
<td>-3°</td>
<td>-3°</td>
<td>1 year</td>
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</table>
difference between the L & R. angle is greater, the less the hypermetropia, seems to indicate that the ratio between these angles is determined by the whole amount of accommodation required and not as might have been expected merely by the amount required which is in excess of the normal. e.g. An emmetropic eye would require no accommodation for longs and 3½ D for Pres. A hypermetropic +2 would require 2 D for longs & 5½ D for Pres. A hypermetropic +4 would require 4 D for longs & 7½ D for Pres. In the case of the low hypermetropia the ratio is 2:5:5 while in the high it is less being only 4:7:5.

The greater reduction in the squint effected by glasses in cases of high hypermetropia is of course just what would be expected. The effect of the use of glasses on strabismus is shown in the table on the opposite page. The glasses were ordered to be worn longs & Pres. i.e. constantly. I think this was conscientiously done except in Case No 6 where they were worn as a rule with frequent intervals for the repair of breakages. In Case No 86 the glasses were in the first instance ordered for Pres only, the squint got larger and when they were worn longs and Pres was again somewhat reduced.

Case No 15 confirms a proposition which I theoretically assumed in drawing up the tables of high and low hypermetropia and their effects, namely that the refraction of the sound eye is of more importance than that of the squinting one. For as the sight of the squinting eye is usually defective (and even if it be not its image is mentally suppressed) it does not matter whether it is in focus or not. The hypermetropia of the sound eye alone determines the accommodation and accompanying convergence required for distinct vision. In the case referred to, the squinting eye was more hypermetropic than the other, a glass was ordered for it only which nearly equalized the two, under the hope that binocular vision would return when its possibility was thus offered to the patient. The squint became larger and was not altered by the presence of the spectacles. It was however at once reduced by correcting the hypermetropia of the sound eye. The great
improvement in the vision of the squinting eye in this case has already been referred to.

This table does not in all its details admit of an analysis by average, but a glance at its contents will show the following points:

1. The average original squint is 23.7° which is immediately reduced to 20.5° with glasses. The permanent use of glasses still further reduces the amount to 15.5°, but when the glasses are removed the squint at once increases to 21°. That is to say the permanent effect produced by glasses is much the same as the temporary effect at the commencement of their use.

2. The difference between the squint with and without glasses is 3° at the commencement of their use, and is 5.5° after they have been worn some time.

3. The only cases of large squint which were materially lessened by glasses are No. 7 and No. 19. In these cases the previous duration of the squint was short only 3 months, and the patient's age at the onset was considerably below the average, viz. 9. Only the hypermetropic squint eye is above the average. The tendency of squint cannot have been great otherwise it would have appeared at an earlier age. The great shortening of the face, etc., could not occur in three months. It would therefore be expected to be a case easily cured. Moreover the high hypermetropia would lend one to expect a good effect from the correction by spectacles. Too much stress must not be laid on these points as the first case (No. 7) derived more benefit from spectacles, and yet was the direct antithesis of the first. In the three particulars before mentioned, viz. the squint of 16 years standing, cause of an infancy, and the refraction of the sound eye was very low.

4. Considerable improvement was obtained in those cases where the original squint was under 10° while those cases where it was of large amount (except No. 7 & 19) were either not
well improved or only slightly benefitted
5. The three cases which had been operated on were considerably improved, at least when the glasses were on.
6. Very bad sight in the squinting eye is no obstacle to the cosmetic effect of glasses.
7. Glasses seem to have exerted their full effect in about two months & no further improvement follows their continued use.

Effect of Operation.

Effect of a single lens. I divide these into two great classes (1) Those which are cured and (2) Those which are not. From those which are cured we learn comparatively little. For this reason: every individual has the power, while keeping up a uniform accommodative effort, of varying the amount of convergence physiologically associated with that effort. The amount of this power can be measured by the strongest prism through which he can still see single. When the prism is placed base in or out, his powers of divergence or convergence are tested respectively. The refractive index of the prisms supplied in the ordinary boxes of trial lenses is such that the angular deflection of the light is about half the angle of the prism itself. Therefore if a patient can still see single through a prism of 20° base out and of 10° base in, he is able to converge 10° and diverge 7½° without altering his accommodation. In other words 17½° is his breadth of fusion. Should the position of equilibrium of the visual axes lie within these limits, the desire for binocular vision will ensure that the visual axes of both eyes are made parallel, even though some effort is required, and it would be more comfortable to let them converge or diverge as the case may be. Now suppose an individual to have an intrinsic strabismus of 15° and
to have the breadth of fusion mentioned above, he has the power while accommodating for distance of rotating the eye out 7½° but as that would not be sufficient to produce parallelism and therefore binocular vision, it is a more comfortable thing for him to make no such effort. Suppose now a tenotomy of the Int. Rect. is performed the position of equilibrium is moved from 15° inwards to 5° inwards. The patient is now able to produce parallelism and whereas a reduction of only 10° has been effected in the position of equilibrium, the whole of the 15° of Strabismus has been abolished. Again suppose in the same case that the operation moved the position of equilibrium outwards 20°, an external Strabismus of 5° would result unless the patient were to use part of this 15° of latent convergence. This he will probably do, producing parallelism in this way the same apparent effect will result from two operations, one of which is twice as potent as the other.

Probably the final result may be the same, for the constant call for convergence and divergence in each case may lead to greater development of the requisite faculties, and the breadth of fusion be extended in the proper direction.

I have introduced this digression to show that when a squint is cured the amount due to the operation is uncertain but when it is not reduced, the reduction can be altogether attributed to the treatment.

There are 19 cases of simple Tenotomy 8 were cured with an average reduction 19.7°.

Of these cases which were all cured the largest single reduction was 16° and the smallest 5° the average being 10°. The Pin reduction varies more the highest being 29° and the lowest 7°.

It is also to be noted that the effect of operation is greater for the first 7 days & is seen to have diminished again in cases observed after the 10th day.
### Simple Tenotomies followed by Glasses

<table>
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<tr>
<th>No. of Case</th>
<th>Original L</th>
<th>P</th>
<th>Time after Tenotomy</th>
<th>Subsequent L</th>
<th>P</th>
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<td>1</td>
<td>18°</td>
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<td>26°</td>
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</tr>
<tr>
<td>9</td>
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<td>22°</td>
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<td>4 years</td>
<td>21°</td>
<td>+2°withglass</td>
</tr>
<tr>
<td>17</td>
<td>16° 25°</td>
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<td>0°</td>
<td>-10°withglass</td>
</tr>
<tr>
<td>21</td>
<td>31° 30°</td>
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<td>17°</td>
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<td>33</td>
<td>31° 32°</td>
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<td>5 months</td>
<td>5°</td>
<td>9°</td>
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<td>60</td>
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<td>2 years</td>
<td>-2°</td>
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<tr>
<td>61</td>
<td>18°</td>
<td></td>
<td>7 weeks</td>
<td>0°</td>
<td>-8°withglass</td>
</tr>
</tbody>
</table>

### Tenotomy and Advance ment

<table>
<thead>
<tr>
<th>No. of Case</th>
<th>Original L</th>
<th>P</th>
<th>Time after Tenotomy</th>
<th>Subsequent L</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>50°</td>
<td></td>
<td>3 days</td>
<td>8°</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>38° 40°</td>
<td></td>
<td>7 days</td>
<td>6°</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>25° 28°</td>
<td></td>
<td>2 months</td>
<td>-2°</td>
<td>-1°</td>
</tr>
<tr>
<td>48</td>
<td>29° 29°</td>
<td></td>
<td>16 days</td>
<td>18° 18°</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>-3°</td>
<td></td>
<td>3 days</td>
<td>-5°</td>
<td>+6° withglass</td>
</tr>
<tr>
<td>54</td>
<td>31°</td>
<td></td>
<td>10 days</td>
<td>3°</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>52° 48°</td>
<td></td>
<td>5 days</td>
<td>37° 37°</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>40°</td>
<td></td>
<td>2 days</td>
<td>25°</td>
<td></td>
</tr>
</tbody>
</table>

### Tenotomy Adjustment, 2nd Glasses

<table>
<thead>
<tr>
<th>No. of Case</th>
<th>Original L</th>
<th>P</th>
<th>Time after Tenotomy</th>
<th>Subsequent L</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>48° 45°</td>
<td></td>
<td>10 days</td>
<td>-4° 6°</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>27°</td>
<td></td>
<td>6 days</td>
<td>5°</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>44° 48°</td>
<td></td>
<td>14 days</td>
<td>8°</td>
<td>-3°withglass</td>
</tr>
<tr>
<td>63</td>
<td>32° 35°</td>
<td></td>
<td>3 months</td>
<td>-6°</td>
<td>-6°</td>
</tr>
<tr>
<td>70</td>
<td>26°</td>
<td></td>
<td>5 days</td>
<td>7° 17°</td>
<td></td>
</tr>
</tbody>
</table>

### Tenotomy in each Eye at different Times

<table>
<thead>
<tr>
<th>No. of Case</th>
<th>Original L</th>
<th>P</th>
<th>Time after Tenotomy</th>
<th>Subsequent L</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>42° 42°</td>
<td></td>
<td>2 days</td>
<td>18°</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>20°</td>
<td></td>
<td>10 months</td>
<td>16°</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>25° 25°</td>
<td></td>
<td>11 months</td>
<td>-5°</td>
<td>-5°withglass</td>
</tr>
</tbody>
</table>

### Tenotomy in Orthotropia followed by Glasses

<table>
<thead>
<tr>
<th>No. of Case</th>
<th>Original L</th>
<th>P</th>
<th>Time after Tenotomy</th>
<th>Subsequent L</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18°</td>
<td></td>
<td>8 months</td>
<td>0°</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>33°</td>
<td></td>
<td>1 year</td>
<td>-2°</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>31° 38°</td>
<td></td>
<td>1 year</td>
<td>2° 8°</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>29°</td>
<td></td>
<td>1 month</td>
<td>1 year</td>
<td></td>
</tr>
</tbody>
</table>

### Tenotomy in Orthotropia followed by Glasses

<table>
<thead>
<tr>
<th>No. of Case</th>
<th>Original L</th>
<th>P</th>
<th>Time after Tenotomy</th>
<th>Subsequent L</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>35° 38°</td>
<td></td>
<td>10 months</td>
<td>-10°</td>
<td>-11°</td>
</tr>
<tr>
<td>52</td>
<td>42° 42°</td>
<td></td>
<td>7 days</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>-5° -4°</td>
<td></td>
<td>18 days</td>
<td>-13</td>
<td>-8</td>
</tr>
<tr>
<td>65</td>
<td>33° 37°</td>
<td></td>
<td>6 weeks</td>
<td>0°</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>40°</td>
<td></td>
<td>6 weeks</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
average page reduction during the first 7 days being 19°

while, from the 11th day on, it is 14 7°

Tenotomy followed by the use of glasses. Of 9 cases 4 were cured with an average reduction of 20.5°. The average reduction in the other five being 14.2°.

The average reduction from glasses alone was previously shown to be 3.7° and from tenotomy alone 10°. The result when the two methods are combined thus appears to be practically equal to the sum of them separately.

Cases No 1 & No 12 (See cases) demonstrate a clinical fact which I have occasionally observed but cannot find

rules of the other cases, viz., that when after an operation the esotropia is diminished when tested without glasses but

abolished with them, glasses are constantly worn, the

eyes remain parallel with the glasses, but the Spine

without them gradually grow nearly to the original

amount. In case No 1 the first squint without a

lens was actually greater than it was at the be

ginning. Why this should be I cannot tell.

Tenotomy in each eye at different times. There

is one case cured with a reduction of 30° and two

cases in which the squint was reduced, the average

reduction being 16°.

Tenotomy in each eye at different times followed by glasses.

There are 4 cases all practically cured with a reduction of 27.7°

Tenotomy and advancement in the same eye at the same time.

There are 8 cases. They were cured with an average reduction of 31°. The other 5 cases had an average reduction of 23°. Unfortunately there is no observation in the latter of these cases beyond 10 days after the operation. So it is not known how much of this re

duction may or have been ultimately lost again.
There are 6 cases. Two were cured with an average reduction of 42.5°. In the three cases that were reduced, the average reduction from the 6th to the 9th day was 30.3° and the reduction from the 2nd to the 3rd month was 24.3°. The ultimate loss from the original gain is therefore 6° which is almost exactly the same as was found in simple tenotomies [52]. This loss is therefore not to be attributed to the pliètes slipping or being taken out too soon. In all the cases they were removed on the 4th or 5th day.

Tenotomies in each eye with advancement in one.

There are 6 cases. One was cured with a reduction of 33°. In the 5 cases that were reduced, the average reduction was 36.8°.

It is interesting to note that No 36 in which all three operations were done at once shows the greatest reduction (45°), while No 52 in which they were done on three separate occasions shows the least reduction (28°). The others were done in two sittings.

No 35 may I think be fairly classified with the reductions, though an external strabismus was produced. For the position of equilibrium has been moved from within out through the area of fusion, but 40° has been forced out on the opposite side cannot be disturbed by it.

Tenotomies in each eye with advancement in one followed by glasses.

One case was cured with a reduction of 29°. See Case No 48.

Tenotomies and advancement in each eye. One case cured with a reduction of 40°. See Case No 79 (Divergent strabismus).

Tenotomies and advancement in each eye followed by glasses. One case reduced, the reduction being 34°. See Case No 56.
Unclassed Cases.

The case of Simple tonotony where the eye was not left out by a stitch in the check caused with a reduction of 36° (Note 25).

Three cases of exotropia from paralysis of the 6th nerve in which the condition had become apparently permanent. The first two had an internal strabismus of 10° removed by a tenotomy of the Int. Rect. The third had an exotropia strabismus of 20° removed by advancement of Ext. Rect.

Angle K. On referring to the cases it will be seen that the angle K was taken with certainty on both eyes in thirteen cases. It averages 6.25° in the sound eye and 4° in the squinting eye. There is therefore a difference of 2.25°. I think this is due to the shifting of the point of most acute vision on the retina inwards so as to meet to some slight extent the requirements of the squint and is analogous to the “two yellow spots” described by some writers as being present in squint and which accounts for crossed diplopia after strabismus even when convergence remains, or it may produce monocular diplopia.

My view is supported by Case No 48 in which the angle K seemed negative on the first examination but after parallelism was restored it became to a slight degree divergent.

Mobility of the eyeball inwards and outwards. I report that so few observations have been made on this point. In the preceding cases where observations have been made it will be observed that in all except No 58 where the eye still pointed in movement there is a diminution on the side of the tenotony, while on the opposite side there has been either an increase of mobility or the condition has been unchanged. In No 66 the total mobility of the eye has been increased, in
Practical Suggestions

1. The angular measurement of squint is to be prepared to all others as being the most exact. The angle to be also measured otherwise the exact amount of reduction required cannot be known.

2. The mobility inwards and outwards should be tested but especially the latter. A considerable limitation of the outwards movement would make it desirable if otherwise practicable to advance the external Rectus.

3. The refraction and vision of each eye should be ascertained and the immediate effect of glasses on the angle of the squint and the vision should be noted.

4. As the effect of the use of glasses is so uncertain, it would be desirable in most cases of less than 20°, when the time can be spared, to give them a trial of about two months. If they are to be worn at all they should be prescribed for constant use. The full correction should also be given. It should now be decided whether the patient is to wear glasses permanently or not. In making this decision it should be remembered that in all cases a perfect or at least a fair cosmetic effect can be hoped for by operation alone. But it should also be borne in mind that the case is not really cured unless binocular vision is restored. If the vision of the squinting eye is not very bad, say not below 0.75 and the refraction of the two eyes does not differ by more than 1.0 D it is
possible when the squint is removed by operation that—since the squint will return of itself or can be developed by arbitrary exercise. In such a case it is a pity to lose sight of an operation which will necessitate to complete the cure a very prolonged use of glasses. Several of my cases have shown that once when this is done a cure can be effected while glasses are worn, but when they are removed the squint is as bad or worse than ever. Moreover the prolonged use of glasses is almost certain to develop asthenopia when they are removed. In such cases it would for obvious reasons it would be better to wait for a second operation at once, and abandon the use of glasses unless perhaps for reading.

Where however the vision is improved by glasses in one of the eyes from the presence of asthenopia or if there is a high hypermetropia, a where the patient from the first complains of asthenopia, it is then better to decide that spectacles should always be worn. This is more particularly essential where the refraction of the two eyes differs by a large amount.

The nature of the operation requires in the first-class of cases by the size of the angle, without glasses, while in the second class of cases the angle with glasses should be considered.

1. It would be safe to assume that—cases of short duration and which have developed late (from the age of 16 months) are more amenable to treatment, and therefore require a smaller operation.

7. The effects of all operations seems on the average to be greater for the first few days than it is several weeks afterwards. It would therefore be advisable to allow a fortnight, preferably three weeks to elapse after one operation before pro
8. It should also on the other hand be remembered that the effect of an operation at the end of three weeks or so, will often gradually increase for a year or more. Also a divergence remaining after three weeks will not tend to disappear but will rather increase for some years, sometimes to a very great extent. It is therefore safer to aim at something not of full correction by about 3°-4°. Glasses for reading are often a help to remove this slight amount.

9. No operation should be performed on a squint as long as it remains periodic. Glasses worn constantly or for reading only will probably be sufficient.

10. If the squint is 10° or less including aphakia no operation should be performed till spectacles have been tried for at least two months. If a simple tenotomy is now decided upon, the spectacles may be discontinued for as long as possible before the operation so as to encourage the squint to become larger.

11. In cases of 15°-20° (including aphakia) a simple tenotomy may be performed followed if necessary by glasses.

12. In cases of 20°-25° (including aphakia) a tenotomy should be performed followed in three weeks by a tenotomy of the sound eye if 10° remain. If less than 10° remain, spectacles would be tried for a time.

13. In cases of 25°-35° tenotomy with advancement may be done at once, followed in three weeks by a tenotomy of more than 10° remain. If not try glasses.

14. Cases of more than 35° would always have to begin with a tenotomy & dynamic advance amount. If more than 25° remain this should be repeated in three
weeks on the sound eye. If some 10° to 25° remain
a slight tendency on the sound eye and if less than
10° glaucoma.