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Clarke, Ernest, 1857-1932.
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Publication/Creation

[London] : [Sheratt and Hughes], [1894]

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THE ASSOCIATION OF BLEPHARITIS AND
AMETROPIA WITH ANALYSIS OF ONE
HUNDRED CASES.

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SINCE Roosa first drew attention to the association of blepharitis with ametropia, Hall in 1882¹ has published a list of ten cases of blepharitis, in nine of whom ametropia was found to exist, but since then no further statistics have been published. Blepharitis is usually divided into two varieties: (1) the non-ulcerative and (2) the ulcerative; they merge, the one into the other, and the ulceration is nature's effort to get rid of the scabs which form from the increased secretion of the glands. The form of the disease I would specially refer to is the chronic mild blepharitis beginning in early childhood, and sometimes continuing through life when untreated. Careful examination shows that in these cases the disease is practically limited to the facial margin of the free border of the lids, *i.e.*, the most-immediate region of the lashes. The skin is here slightly congested, and is covered by thin fine scales, often very small. These "weak eyes," as they are termed, are a constant source of trouble to the patient, for the slightest irritation, such

¹ *New York Medical Record*, April, 1882.

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as dust or smoke, causes a spreading of the inflammation to the conjunctiva.

The worse form of blepharitis, so common among the children of the poor, called *eczema tarsi* or *sycosis*, often begins with an attack of phlyctenular ophthalmia; the patients are generally strumous and dirty, which conditions are often considered to be the real cause of the disease, but all such cases I have examined were ametropic, and although the constitutional tendency to eczema, &c., and the uncleanness may materially "feed" the disease, I believe the asthenopia causes the eyes to be attacked in the first instance.

Analysis of the 100 cases.—Cases not picked. In all the disease had lasted over a year, in many all the life. They were all placed under the influence of a mydriatic. Atropine was used for those under 20, and homatropine and cocaine for those over 20.

Taking ametropia to signify a refraction of more than a quarter of a dioptré of astigmatism, any myopia, and more than one dioptré of hypermetropia, *i.e.*, taking it in its broadest sense, every one of the 100 patients was ametropic.

Refraction of the 200 Eyes.

Hypermetropia	...	...	...	64
Hypermetropic astigmatism	...	...	...	96
Mixed astigmatism	...	...	...	8
Myopia...	...	...	...	5
Myopic astigmatism	..	...	...	26
Emmetropia	...	...	...	1
				—
				200
				—

Note that in 168 eyes (*i.e.*, 84 per cent., hypermetropia existed in some form. Out of the 200 eyes 194 were either hypermetropic or astigmatic (giving rise to *accommodative asthenopia*). The two cases of myopia

in both eyes (7 and 39) had inefficiency of the internal recti (causing *muscular asthenopia*). Forty-one of the patients were anisometropic. In most of the cases the ametropia was of low degree, and out of the 96 eyes in which hypermetropic astigmatism existed, the astigmatism in 72 was not more than .5D. This is exactly as one would expect it to be; it is just this low form of astigmatism which is most productive of asthenopia.

Sex.—Thirty-five were males and sixty-five females.

Age.—The average age was 17 years.

Occupation.—Sixty-seven of the patients were engaged at near work during most of the day. Forty-four were school children.

Vision before testing.—Eighty-seven of the patients sought advice for "sore eyes" and were unconscious of any defect of vision, and of these sixty-six had with one or both eyes $V. = \frac{6}{9}$ or better, and fifty-two had $V. = \frac{6}{8}$ or better.

To sum up: (1) Blepharitis is essentially a disease of youth, and when we find it present in older patients it has existed since youth. (2) It is an expression of asthenopia, the result of ametropia, which is invariably present. Just as asthenopia shows itself as headache or ocular pain in those whose nervous system is so constituted, so in others, especially strumous patients and those who exhibit a tendency to eczema, does asthenopia mark its presence by blepharitis.

It may be contended by some that 100 normal patients with no blepharitis would have shown the same percentage of ametropia, but this is not so. Work Dodd¹ in his list of fifty people apparently normal, whose refraction was examined, gives out of the 100 eyes twenty emmetropic in the sense I use them above, *i.e.*, 20 per cent.

¹ *Trans. Oph. Soc.*, vol. xiii., p. 208.

In my list of 200 eyes the proportion of emmetropia was much lower; but even if this were not so, if all eyes were more or less ametropic, my answer is, the proof that asthenopia causes the blepharitis lies in the undisputed fact that case after case which has resisted treatment for years has yielded when the ametropia was corrected, and the patient given glasses to wear constantly; this is the essential part of the *treatment* of blepharitis, namely, to paralyse the accommodation, find the refractive error, and order suitable spectacles. The local application of mild astringent lotions and ointment should be employed of course, and in severe cases epilation and painting with nitrate of silver may have to be resorted to, but no permanent cure can be hoped for until the eye-strain has been removed.

ONE HUNDRED CASES OF BLEPHARITIS.

No.	Sex.	Age.	Occupation.	Vision.	R. Refraction under a Mydriatic. L.
1	M	38	Hair dresser	$\frac{6}{9}$	+ 1 cy. ob. — 1'5 cy. ob.
2	M	14	School	$\frac{6}{9}$	+ 1'5 B.E.
3	F	19	Servant	$\frac{6}{6}$	+ 3 B.E.
4	M	33	Compositor	$\frac{6}{6}$	-'5 cy. vert. { + 4 + 1 cy. hor.
5	M	23	No occupation	$\frac{6}{3}$	+ 3 + 2
6	M	22	Piano tuner	$\frac{6}{18}$	{ + 4'5 { + 3'5 { + 1'5 cy. ob. { + 4 cy. vert.
7	F	15	School	$\frac{6}{10}$	- 2 B.E.
8	F	18	At home	$\frac{6}{6}$	+ 3'5 + 2'5
9	F	16	Teacher	$\frac{6}{9}$	+ 1 { + 1 + '5 cy. hor.
10	F	19	Clerk	$\frac{6}{6}$	+ '5 cy. hor. B.E.
11	M	11	School	$\frac{6}{6}$	+ 2 B.E.
12	F	18	Dressmaker	$\frac{6}{6}$	+ '5 cy. vert. B.E.
13	F	4	...	$\frac{6}{6}$	+ 4 B.E.
14	F	17	Dressmaker	$\frac{6}{6}$	+ 2'5 B.E.
15	F	6	School	$\frac{6}{6}$	+ 2 { + 2 + 1 cy. vert.
16	M	23	Printer	$\frac{6}{6}$	{ + 2'5 { + 1 { + '5 cy. ob. { + '75 cy. vert.
17	F	30	Shop assistant	$\frac{6}{9}$	{ - 1 { - '5 cy. hor. B.E.
18	F	42	Housewife	$\frac{6}{6}$	+ 3'5 B.E.
19	F	19	Packer	$\frac{6}{12}$	+ 5 { + 4'5 + '75 cy. vert.
20	F	13	School	$\frac{6}{6}$	+ '5 cy. hor. B.E.

ONE HUNDRED CASES OF BLEPHARITIS.—*continued.*

No.	Sex.	Age.	Occupation.	Vision.	R. Refraction under a Mydriatic. L.
21	M	22	Carpenter	$\frac{6}{9}$	$\left\{ \begin{array}{l} + 1.5 \\ + .5 \text{ cy. ob.} \end{array} \right. \quad + 1.5$
22	F	15	At home	$\frac{6}{12}$	$+ 3 \quad \left\{ \begin{array}{l} + 3 \\ + .5 \text{ cy. vert.} \end{array} \right.$
23	F	22	Tie maker	$\frac{6}{8}$	$\left\{ \begin{array}{l} + 1 \\ + .5 \text{ cy. vert.} \end{array} \right. \quad \left\{ \begin{array}{l} + 2 \\ + .5 \text{ cy. vert.} \end{array} \right.$
24	F	14	School	$\frac{6}{8}$	$\left\{ \begin{array}{l} + 1.5 \\ + 5 \text{ cy. vert.} \end{array} \right. \quad \text{B.E.}$
25	F	45	Nurse	$\frac{6}{8}$	$+ 1 \quad + 2$
26	M	37	Compositor	$\frac{6}{8}$	$+ 3 \quad + 4$
27	M	9	School	$\frac{6}{12}$	$\left\{ \begin{array}{l} + 1 \\ + 1 \text{ cy. ob.} \end{array} \right. \quad + 4$
28	M	19	Clerk	$\frac{6}{8}$	$+ 4 \quad + 5.5$
29	F	15	School	$\frac{6}{8}$	$\left\{ \begin{array}{l} + .5 \\ + .25 \text{ cy. hor.} \end{array} \right. \quad \left\{ \begin{array}{l} + .5 \\ + .25 \text{ cy. hor.} \end{array} \right.$
30	F	22	Servant	$< \frac{6}{80}$	$\left\{ \begin{array}{l} - 6 \\ - 2 \text{ cy. ob.} \end{array} \right. \quad \left\{ \begin{array}{l} - 6 \\ - 1 \text{ cy. vert.} \end{array} \right.$
31	F	30	Housewife	$\frac{6}{8}$	$\left\{ \begin{array}{l} + .75 \text{ cy. vert.} \\ - .5 \end{array} \right. \quad \text{B.E.}$
32	M	9	School	$\frac{6}{8}$	$\left\{ \begin{array}{l} + 1 \text{ cy. ob.} \\ + 1 \end{array} \right. \quad \left\{ \begin{array}{l} + 1 \text{ cy. ob.} \\ + 1 \end{array} \right.$
33	M	8	„	?	$+ 4 \text{ cy. vert.} \quad + 3 \text{ cy. vert.}$
34	M	27	Lawyer	$\frac{6}{8}$	$\left\{ \begin{array}{l} + .5 \text{ cy. ob.} \\ - .25 \end{array} \right. \quad \left\{ \begin{array}{l} + .5 \text{ cy. ob.} \\ - .25 \end{array} \right.$
35	F	12	School	$\frac{6}{8}$	$+ 3.5 \text{ B.E.}$
36	M	20	College	$\frac{6}{8}$	$+ .5 \text{ cy. vert.} \quad + .5$
37	F	11	School	$\frac{6}{8}$	$+ 2.5 \text{ B.E.}$
38	F	21	Housewife	$< \frac{6}{80}$	$\left\{ \begin{array}{l} - 18 \\ - 2 \text{ cy. vert.} \end{array} \right. \quad \left\{ \begin{array}{l} - 7 \\ - .75 \text{ cy. ob.} \end{array} \right. \quad \left. \begin{array}{l} \} 2 \text{ m.a.} \\ \} \text{ lat. div.} \end{array} \right.$
39	M	30	Doctor	$< \frac{6}{80}$	$- 6 \quad - 5.5,$ I m.a. lat. div.
40	M	10	School	$\frac{6}{8}$	$+ .5 \text{ cy. vert.} \quad \text{B.E.}$
41	F	25	Music teacher	$\frac{6}{8}$	$\left\{ \begin{array}{l} + .25 \\ + .25 \text{ cy. ob.} \end{array} \right. \quad + .5 \text{ cy. ob.}$
42	F	17	School	$\frac{6}{8}$	$+ .5 \text{ cy. hor.} \quad \text{B.E.}$
43	F	25	Music teacher	$\frac{6}{8}$	$+ .5 \text{ cy. ob.} \quad + .5 \text{ cy. ob.}$
44	M	9	School	$\frac{6}{8}$	$\left\{ \begin{array}{l} + 1 \\ + .5 \text{ cy. vert.} \end{array} \right. \quad \left\{ \begin{array}{l} + 1 \\ + .5 \text{ cy. vert.} \end{array} \right.$
45	F	10	School	$\frac{6}{8}$	$+ .75 \text{ cy. vert.} \quad \text{B.E.}$
46	F	30	Housewife	$\frac{6}{12}$	$\left\{ \begin{array}{l} - .5 \text{ cy. ob.} \\ - .5 \end{array} \right. \quad \left\{ \begin{array}{l} - .75 \text{ cy. hor.} \\ - .5 \end{array} \right.$
47	F	15	School	?	$- 3.5 \quad \left\{ \begin{array}{l} - 3 \\ - .5 \text{ cy. vert.} \end{array} \right.$
48	F	30	Lady nurse	$\frac{6}{8}$	$\left\{ \begin{array}{l} + .5 \\ + .5 \text{ cy. vert.} \end{array} \right. \quad \text{B.E.}$
49	F	21	Book folder	$\frac{6}{8}$	$+ 1.75 \text{ B.E.}$
50	F	13	School	$\frac{6}{8}$	$\left\{ \begin{array}{l} + .5 \\ + .5 \text{ cy. ob.} \end{array} \right. \quad \left\{ \begin{array}{l} + .5 \\ + .5 \text{ cy. ob.} \end{array} \right.$
51	F	23	Ward maid	$\frac{6}{8}$	$+ 3.5 \text{ B.E.}$
52	F	15	School	?	$+ 4.5 \text{ B.E.}$

ONE HUNDRED CASES OF BLEPHARITIS.—*continued.*

No.	Sex.	Age.	Occupation.	Vision.	R. Refraction under a Mydriatic. L.
53	M	11	„	$\frac{6}{8}$	$\left\{ \begin{array}{l} +.5 \\ +.5 \text{ cy. vert.} \end{array} \right. \text{ B.E.}$
54	F	9	„	$\frac{6}{18}$	$\left\{ \begin{array}{l} -.5 \\ -2.5 \text{ cy. hor.} \end{array} \right. \text{ B.E.}$
55	F	19	Corset maker	$\frac{6}{12}$	$+ .75 \text{ cy. vert.} + 1.5 \text{ cy. ob.}$
56	F	10	School	$\frac{6}{36}$	$\left\{ \begin{array}{l} -1 \\ -3 \text{ cy. hor.} \end{array} \right. \text{ B.E.}$
57	F	20	At home	$\frac{6}{8}$	$\left\{ \begin{array}{l} +.5 \\ +.75 \text{ cy. vert.} \end{array} \right. \left\{ \begin{array}{l} -1.5 \\ +.75 \text{ cy. vert.} \end{array} \right.$
58	F	13	School	$\frac{6}{18}$	$+ 1.5 \text{ cy. vert. B.E.}$
59	M	7	„	?	$\left\{ \begin{array}{l} +2 \\ +1 \text{ cy. vert.} \end{array} \right. \left\{ \begin{array}{l} +2.5 \\ +1.5 \text{ cy. vert.} \end{array} \right.$
60	M	17	Clerk	?	$\left\{ \begin{array}{l} -4 \\ -1 \text{ cy. ob.} \end{array} \right. \left\{ \begin{array}{l} -4 \\ -1 \text{ cy. ob.} \end{array} \right.$
61	F	19	At home	$\frac{6}{12}$	$\left\{ \begin{array}{l} -1.5 \text{ cy. vert.} \\ -1.5 \end{array} \right. - 1.5 \text{ cy. ob.}$
62	M	13	School	$\frac{6}{8}$	$+ 1.5 \text{ cy. vert. B.E.}$
63	F	16	Shop assistant	$\frac{6}{9}$	$+ .5 \text{ cy. vert. B.E.}$
64	F	12	School	$\frac{6}{8}$	$\left\{ \begin{array}{l} +1.25 \\ +.75 \text{ cy. vert.} \end{array} \right. \text{ B.E.}$
65	M	11	„	$\frac{6}{8}$	$+ .5 \text{ cy. ob.}$
66	M	11	„	$\frac{6}{18}$	$\left\{ \begin{array}{l} +1.5 \\ +3 \end{array} \right. \left\{ \begin{array}{l} +.5 \\ +3.5 \end{array} \right.$
67	F	26	At home	$\frac{6}{12}$	$\left\{ \begin{array}{l} +3 \\ +1 \text{ cy. vert.} \end{array} \right. \left\{ \begin{array}{l} +3 \\ .5 \text{ cy. vert.} \end{array} \right.$
68	F	31	„	$\frac{6}{80}$	$\left\{ \begin{array}{l} -2 \\ -4 \text{ cy. ob.} \end{array} \right. \left\{ \begin{array}{l} -2 \\ -5 \text{ cy. ob.} \end{array} \right.$
69	M	2½	...	?	$+ 4.5 \text{ B.E.}$
70	M	5½	School	$\frac{6}{8}$	$+ 2.5 \text{ B.E.}$
71	F	20	Ward maid	$\frac{6}{24}$	$\left\{ \begin{array}{l} +.5 \text{ cy. vert.} \\ +1 \end{array} \right. \text{ B.E.}$
72	M	5	School	?	$+ 3 \text{ B.E.}$
73	M	12	„	$\frac{6}{8}$	$\left\{ \begin{array}{l} +2 \\ -.5 \end{array} \right. \left\{ \begin{array}{l} +1.5 \\ -1 \end{array} \right.$
74	F	38	Housewife	$\frac{6}{18}$	$\left\{ \begin{array}{l} -.5 \\ -.5 \text{ cy. hor.} \end{array} \right. \left\{ \begin{array}{l} -1 \\ -.5 \text{ cy. hor.} \end{array} \right.$
75	F	29	Parlour maid	$\frac{6}{8}$	$\left\{ \begin{array}{l} +.25 \\ +.5 \text{ cy. vert.} \end{array} \right. \left\{ \begin{array}{l} +.25 \\ +.25 \end{array} \right.$
76	F	3	...	?	$+ 3 \left\{ \begin{array}{l} +2 \\ +.5 \end{array} \right.$
77	F	10	School	$\frac{6}{18}$	$\left\{ \begin{array}{l} +.25 \\ +.5 \text{ cy. vert.} \end{array} \right. \left\{ \begin{array}{l} +.5 \\ +.5 \text{ cy. vert.} \end{array} \right.$
78	M	17	Errand boy	$\frac{6}{12}$	$\left\{ \begin{array}{l} +1 \\ +.5 \text{ cy. vert.} \end{array} \right. \left\{ \begin{array}{l} +1 \\ +.5 \text{ cy. vert.} \end{array} \right.$
79	F	10	School	$\frac{6}{9}$	$+ 2.5 \text{ B.E.}$
80	F	16	At home	$\frac{6}{12}$	$\left\{ \begin{array}{l} +.25 \text{ cy. hor.} \\ +.5 \end{array} \right. \text{ B.E.}$
81	M	9	School	$\frac{6}{18}$	$\left\{ \begin{array}{l} +1 \\ -4 \text{ cy. hor.} \end{array} \right. \left\{ \begin{array}{l} +2 \\ -4 \text{ cy. hor.} \end{array} \right.$
82	F	18	Packer	$\frac{6}{12}$	$\left\{ \begin{array}{l} +2 \\ +2.5 \text{ cy. ob.} \end{array} \right. \left\{ \begin{array}{l} +3 \\ +.75 \text{ cy. vert.} \end{array} \right.$
83	F	11	School	$\frac{6}{18}$	$+ .25 \text{ cy. vert.} + 2 \text{ cy. ob.}$
84	F	22	Dressmaker	$\frac{6}{24}$	$+ 1.5 \text{ cy. vert.} + 1 \text{ cy. vert.}$

ONE HUNDRED CASES OF BLEPHARITIS.—*continued.*

No.	Sex.	Age.	Occupation.	Vision.	R. Refraction under a Mydriatic. L.	
85	M	23	Shopman	$\frac{6}{8}$	+ 2'5	+ 4'5
86	F	14	School	$\frac{6}{6}$	$\left\{ \begin{array}{l} + '5 \\ + '5 \text{ cy. vert.} \end{array} \right.$ B.E.	
87	F	13	"	$\frac{6}{6}$	$\left\{ \begin{array}{l} + '5 \\ - 1 \text{ cy. hor.} \end{array} \right.$ — 2 cy. hor.	
88	M	14	"	$\frac{6}{6}$	$\left\{ \begin{array}{l} - 2 \\ - 1 \text{ cy. vert.} \end{array} \right.$ + '5 cy. vert.	
89	F	18	"	$\frac{6}{2}$	+ '5 cy. ob.	Em.
90	M	8	"	$\frac{6}{9}$	+ 3'5	+ 3
91	F	21	At home	$\frac{6}{2}$	+ '5 cy. ob.	+ '5 cy. ob.
92	M	14	School	$\frac{6}{5}$	+ '5 cy. ob.	+ '5 cy. ob.
93	M	26	Doctor	$\frac{6}{5}$	$\left\{ \begin{array}{l} + '5 \\ + '5 \text{ cy. vert.} \end{array} \right.$ + '5	
94	M	12	School	$\frac{6}{5}$	+ '25	+ '5 cy. vert.
95	F	11	"	$\frac{6}{5}$	+ 3'5	+ 1'5
96	F	26	At home	$\frac{6}{5}$	$\left\{ \begin{array}{l} + '5 \\ + '5 \text{ cy. vert.} \end{array} \right.$ + '5 cy. vert.	
97	F	20	"	$\frac{6}{4}$	+ 3'5	$\left\{ \begin{array}{l} + 3 \\ + '5 \text{ cy. vert.} \end{array} \right.$
98	F	23	"	$\frac{6}{6}$	$\left\{ \begin{array}{l} + 1 \text{ cy. vert.} \\ - 1 \end{array} \right.$	$\left\{ \begin{array}{l} - 1 \text{ cy. ob.} \\ - 1 \end{array} \right.$
99	F	20	"	$\frac{6}{5}$	$\left\{ \begin{array}{l} + '5 \\ + '5 \text{ cy. vert.} \end{array} \right.$ B.E.	
100	F	10	School	$\frac{6}{5}$	$\left\{ \begin{array}{l} + '5 \\ + '5 \text{ cy. vert.} \end{array} \right.$ + 1 cy. vert.	

ABBREVIATIONS.

Cy. = cylinder; vert. = vertical axis; hor. = horizontal axis; ob. = oblique axis; lat. div. = latent divergence. The numbers are dioptres, and, except when otherwise stated, refer to spherical lenses.

