FURTHER REPORT

ON THE

AGE AND GROWTH-RATE OF PLAICE IN THE NORTH SEA AND ENGLISH CHANNEL,

AS DETERMINED BY THE

INVESTIGATION OF OTOLITHS.

BY

WILLIAM WALLACE, D.Sc.,

With Tables 1–21 and Figures 1–10 in the Text; Tables I. and I*a*., II. and II*a*., III. and III*a*., IV. and IV*a*., V. and V*a*., VI. and VI*a*., and VII. to IX., and One Chart (Plate I.) at the end.

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I.—Introduction.

1. *Scope of Report.*

In writing this Report the object has been to record as concisely as possible the chief results of an analysis of all the material concerning the Age of Plaice* in the North Sea and English Channel, which has been collected by the Marine Biological Association in connection with the International Investigations.

The principal subjects dealt with, and the sections and tables in which information concerning them will be found, are the following :—

1.—The Age Composition of the Plaice population on various fishing grounds and seasonal changes therein.

Section II. Tables 2 *and* 3.

Table 2 also gives the extreme range of length, range of 50 per cent. and average length of each age-group (irrespective of sex), in each sample.

2.—Evidence of Summer Off-shore Migration in the Texel-Leman region from a comparison of the quantitative distribution of the age-groups in this region in May and September respectively.

Section III. Table 4. *Figs.* 1 *to* 5.

3.—Local variations in the average length of Plaice of a given age in the North Sea and English Channel.

Section IV. Tables 5 *to* 10.

4.—Estimation of the average yearly growth of Plaice in length and weight in the following regions :—

a. Southern Bight of the North Sea (including the Leman region).
b. South Dogger region (including the Flamborough Off ground).
c. Western part of the English Channel.

Section V. Tables 11 *to* 19. *Figs.* 6, 7, *and* 8.

5.—The proportions of the sexes at different ages in the North Sea and English Channel respectively.

Section VI. Tables 20 *to* 22. *Figs.* 9 *and* 10.

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* Not including the Ages of Marked Plaice.

TABLE 1.—Numbers of PLAICE belonging to Different Age Groups (M. = male; F. = Female) in samples from various Fishing Grounds in the North Sea and English Channel, collected during the period, 1906–09, with Particulars of Samples.

Sample No.	Voyage and Station.	Gear and Haul No.	Date.	Name of Fishing Ground.	Central Position. Long. N.	Central Position. Lat.	Depth. Fathoms.	Sex.	Age Groups. O.	I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX+.	Age Doubtful.	Sample total.	Total Catch.	Number of Hours Fishing.
29	—	Shrimp	June, 1906	The Wash	—	—	—	M. + F.	—	*934*	*632*	*69*	*8*	—	—	—	—	—	*116*	*1759*	—	—
30	LXXVII 14	B 500	26 June, 1906	Bridlington Bay	53 59	0 3 W.	10¼–10½	M. ...	—	—	1	9	9	1	1	1	—	—	—	22	43	43	2
								F. ...	—	—	2	**11**	**6**	—	—	1	—	—	1	**21**			
31[1]	LXXX 1	B (c) 508	10 Sept., 1906	,, ,, ...	54 1	0 9 W.	5½–6	M. ...	—	—	46	24	6	2	1	—	—	—	5	84	146	149	2⅝
								F. ..	—	4	**44**	**10**	**4**	—	—	—	—	—	—	**62**			
31[2]	,, 2	,, 509	10 ,,	,, ,, ...	54 3	0 10 W.	5-5½	M. ...	—	—	21	13	3	—	—	—	—	—	—	37	79	79	1
								F. ...	—	1	**15**	**20**	**5**	—	—	—	—	—	1	**42**			
31[3]	,, 3	,, 510	11 ,,	,, ,, ...	54 3	0 9 W.	6	M. ...	—	—	29	20	7	—	—	—	—	—	—	56	85	85	1⅛
								F. ...	—	—	**14**	**10**	**4**	—	—	—	—	—	1	**23**			
32[1]	LXX 1	O 375	22 Mar., 1906	Flamborough Off Ground	54 4	0 55 E.	26–29	M. ...	—	—	5	5	3	2	—	—	—	—	—	15	33	5	—
								F. ...	—	—	2	**9**	**3**	**2**	—	—	—	—	—	**18**			
32[2]	,, 2	,, 376	23 ,,	,, ,, ,, ...	54 3	0 56 E.	26	M. ...	—	—	1	6	2	—	1	—	—	—	—	10	23	23	5
								F. ...	—	—	1	—	**6**	**2**	**2**	1	—	1	—	**13**			
32[3]	,, 3	,, 397	23 ,,	,, ,, ,, ...	54 7	0 51 E.	26–29	M. ...	—	—	3	1	12	**1**	—	—	—	—	—	17	69	69	5
								F. ...	—	—	—	**4**	**32**	**10**	**4**	**1**	—	**1**	—	**52**			
32[4]	,, 5	B 415	23 ,,	,, ,, ,, ...	54 7	0 55 E.	29	M. ...	—	—	1	—	—	1	1	—	—	—	—	**3**	9	9	3
								F. ...	—	—	2	—	3	—	1	—	—	—	—	**6**			
32[5]	,, 9	,, 416	28 ,,	,, ,, ,, ...	54 7	0 54 E.	24–30	M. ...	—	1	—	1	1	1	—	—	—	—	—	4	15	15	5
								F. ...	—	—	1	**2**	**5**	**2**	1	—	—	—	—	**11**			
33[1]	LXXXII 4	O (c) 417	20 Oct., 1906	,, ,, ,, ...	54 12	0 37 E.	29–31	M. ...	—	—	—	—	—	1	—	—	—	—	—	1	5	5	4
								F. ...	—	—	—	**1**	**1**	—	—	1	—	1	—	**4**			
33[2]	,, 5	,, 418	20 ,,	,, ,, ,, ...	54 15	0 42 E.	29–32	M. ...	—	—	—	1	—	2	1	—	—	—	—	4	10	10	5
								F. ...	—	—	—	1	**2**	**1**	—	—	—	**2**	—	**6**			
33[3]	,, 6	,, 419	21 ,,	,, ,, ,, ...	54 21	0 31 E.	32	M. ...	—	—	—	—	—	—	—	—	—	—	—	—	5	5	5
								F. ...	—	—	—	**1**	—	**1**	—	1	—	**2**	—	**5**			
33[4]	,, 7	,, 420	21 ,,	,, ,, ,, ...	54 16	0 24 E.	29–32	M. ...	—	—	—	—	1	1	—	—	—	—	—	2	8	8	3½
								F. ...	—	—	—	—	—	—	1	1	1	3	—	**6**			
33[5]	,, 8	B 522	21 ,,	,, ,, ,, ...	54 6	0 40 E.	29	M. ...	—	—	—	1	—	—	—	—	—	—	—	1	9	9	4
								F. ...	—	—	—	—	—	**3**	**1**	—	—	**4**	—	**8**			
33[6]	,, 9	,, 523	21 ,,	,, ,, ,, ...	54 0	0 45 E.	26–29	M. ...	—	—	—	2	3	2	—	—	—	—	—	7	12	12	5
								F. ...	—	—	—	—	—	3	1	—	—	1	—	**5**			
33[7]	,, 10	,, 524	22 ,,	,, ,, ,, ...	54 0	0 52 E.	26–28	M. ...	—	—	—	—	4	4	—	—	—	—	—	8	18	18	5
								F. ...	—	—	—	—	5	**3**	**2**	—	—	—	—	**10**			
33[8]	,, 11	,, 525	22 ,,	,, ,, ,, ...	53 57	0 54 E.	26	M. ...	—	—	1	5	6	2	**2**	—	—	—	—	16	26	26	5
								F. ...	—	—	**1**	**5**	**1**	—	—	2	—	1	—	**10**			
33[9]	,, 12	,, 526	22 ,,	,, ,, ,, ...	54 3	0 54 E.	26	M. ...	—	—	—	—	—	4	—	1	—	—	—	5	21	21	5
								F. ...	—	—	—	—	4	**6**	**2**	**2**	2	—	—	**16**			
33[10]	,, 13	,, 527	22 ,,	,, ,, ,, ...	54 6	0 51 E.	26–29	M. ...	—	—	—	—	1	1	1	—	—	—	—	3	16	16	5
								F. ...	—	—	—	—	4	**4**	**2**	**2**	—	1	—	**13**			
33[11]	,, 14	,, 528	23 ,,	,, ,, ,, ...	54 11	0 42 E.	29–33	M. ...	—	—	—	—	1	—	1	—	—	—	—	2	4	4	5
								F. ...	—	—	—	—	—	1	—	1	—	—	—	2			
33[12]	,, 15	,, 529	23 ,,	,, ,, ,, ...	54 14	0 34 E.	30–33	M. ...	—	—	—	—	1	—	—	—	—	—	—	1	6	6	5
								F. ...	—	—	—	—	—	2	—	2	—	1	—	5			

33[13]	„	16	„	530	23	„	„ „ „	54	12	0	26 E.	30	M. ...	—	—	—	—	—	—	—	—	—	—	—	8	8	8	1½
													F. ...	—	—	—	—	3	1	—	—	2	2	—				
33[14]	„	17	„	531	23	„	„ „ „	54	25	0	28 E.	33–37	M. ...	—	—	—	—	—	—	1	—	—	—	—	2	2	2	1
													F. ...	—	—	—	—	—	—	—	—	1	—	—				
34	C	1–21	B 721–723 B(c)724–727 O 525–529		2–5 June, 1908		Flamborough Off Ground	54	5	0	56 E.	24–25	M. ...	—	—	—	2	4	3	2	—	—	—	—	40	41	34
													F. ...	—	—	—	1	11	11	1	1	2	2	—				
35	CIV	1–24	B 781–783 B(c)784–787 O 547–554		18-22 Aug., 1908		„ „ „	54	5	0	56 E.	24–25	M. ...	—	—	1	5	37	6	2	3	2	—	—	171	214	45
													F. ...	—	—	—	11	68	25	4	5	2	—	—				
36[1]	LXXXII	1	O (c)	414	16 Oct., 1906		Dogger Bank—South Part... ...	54	38	1	46 E.	10–15	M. ...	—	—	—	—	—	—	—	—	—	—	—	3	3	4
													F. ...	—	—	—	1	1	—	—	—	—	1	—				
36[2]	„	2	„	415	16	„	„ „	54	42	2	1 E.	13–15	M. ...	—	—	1	—	—	1	—	—	—	—	—	5	5	4
													F. ...	—	—	—	—	1	1	—	—	—	1	—				
36[3]	„	3	„	416	16	„	„ „	54	49	1	47 E.	10–15	M. ...	—	—	—	1	—	—	—	—	—	—	—	21	21	5
													F. ...	—	—	—	1	3	2	3	1	3	7	—				
37[1]	LXXXI	1	B (c)	511	25 Sept., 1906		Horn Reef Outer Ground	55	18	6	0 E.	24–25	M. ...	—	—	—	4	1	—	1	—	—	—	—	20	20	2
													F. ...	—	—	—	3	4	3	2	2	—	—	—				
37[2]	„	5	„	515	25	„	„ „ „	55	39	6	15 E.	23–25	M. ...	—	—	—	7	4	—	—	—	—	—	—	24	24	3⅝
													F. ...	—	—	1	8	1	1	1	—	—	1	—				
37[3]	„	6	„	516	26	„	„ „ „	55	38	6	15 E.	21–25	M. ...	—	—	—	19	7	—	—	—	—	—	—	49	49	4
													F. ...	—	—	2	17	1	2	—	—	—	1	—				
37[4]	„	8	„	518	26	„	„ „ „	55	35	6	19 E.	22–23	M. ...	—	—	—	—	—	—	—	—	—	—	—	2	30	2
													F. ...	—	—	—	—	—	—	1	1	—	—	—				
37[5]	„	9	„	519	26	„	„ „ „	55	33	6	17 E.	23–24	M. ...	—	—	1	29	5	—	1	—	—	—	—	67	67	4
													F. ...	—	—	—	24	3	4	—	—	—	—	—				
38[1]	„	10	B	520	27	„	Clay Deep edge of Dogger... ...	55	15	4	4 E.	15–22	M. ...	—	—	—	3	—	2	—	—	—	—	—	11	11	4
													F. ...	—	—	—	—	2	1	—	—	1	2	—				
38[2]	„	11	„	521	27	„	„ „ „	55	13	3	55 E.	17–22	M. ...	—	—	—	—	—	—	—	—	—	—	—	6	6	4
													F. ...	—	—	—	1	1	1	2	1	—	—	—				
39[1]	LXIX	11	B	407	14 Mar., 1906		Off Smith's Knoll Light Vessel ...	52	51	2	27 E.	21–25	M. ...	—	—	1	—	—	—	—	—	—	—	—	3	3	5
													F. ...	—	—	—	1	—	1	—	—	—	—	—				
39[2]	„	12	„	408	14	„	East of South end of Well Bank ...	53	1	2	39 E.	18½–21	M. ...	—	1	1	1	—	—	—	—	—	—	—	5	5	5
													F. ...	—	—	2	—	—	—	—	—	—	—	—				
39[3]	„	14	„	409	14	„	Between South ends of Well and Swarte Banks.	53	10	2	32 E.	16½–19	M. ...	—	—	1	—	—	1	—	—	—	—	—	4	4	5
													F. ...	—	—	2	—	—	—	—	—	—	—	—				
39[4]	„	16	„	410	14	„	Leman Ground	53	16	2	34 E.	16–16½	M. ...	—	1	2	1	2	—	—	—	—	—	—	15	15	4
													F. ...	—	3	1	3	1	1	—	—	—	—	—				
39[5]	„	17	„	411	15	„	„ „	53	22	2	32 E.	15–16	M. ...	—	5	7	9	3	2	—	—	—	—	—	52	52	4
													F. ...	—	1	8	7	7	3	—	—	—	—	—				
39[6]	„	18	„	412	16	„	„ „	53	26	2	15 E.	14 16	M. ...	—	6	26	24	4	—	—	—	—	—	—	102	104	5½
													F. ...	—	9	14	10	5	2	—	—	—	2	—				
39[7]	„	19	„	413	16	„	East side of Swarte Bank... ...	53	24	2	17 E.	14–17	M. ...	—	3	16	4	6	1	—	—	—	—	—	70	72	4½
													F. ...	—	3	14	17	4	1	—	—	—	1	—				
39[8]	„	20	„	414	17	„	N.E. of Smith's Knoll Light Vessel	52	54	2	15 E.	22–25	M. ...	—	—	3	2	—	1	—	—	—	—	—	11	11	6
													F. ...	—	—	1	1	1	1	—	—	—	1	—				
40[1]	LXXIV	1	B (c)	466	10 May, 1906		Between Broken Bank & Swarte Bank.	53	21	2	2 E.	17	M. ...	—	1	8	29	26	15	1	—	—	—	—	162	168	4
													F. ...	—	—	10	32	31	7	2	—	—	—	—				
40[2]	„	2	„	467	11	„	Leman Ground	53	23	2	12 E.	13–17	M. ...	—	—	6	23	26	9	1	—	—	—	—	128	130	5
													F. ...	—	—	9	27	19	6	1	—	—	1	—				
40[3]	„	3	„	468	11	„	„ „	53	25	2	22 E.	13–15	M. ...	—	2	58	54	41	3	1	—	—	—	—	326	326	5
													F. ...	—	—	69	62	25	11	—	—	—	—	—				

TABLE 1—*continued.*

Sample No.	Voyage and Station.	Gear and Haul No.	Date.	Name of Fishing Ground.	Central Position. Long. N.	Central Position. Lat.	Depth. Fathoms.	Sex.	Age Groups. O.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX+.	Age Doubtful.	Sample Total.	Total Catch.	Number of Hours Fishing.
					° ′	° ′																
40^4	LXXIV 4	B (c) 469	11 May, 1906	Leman Ground	53 23	2 37 E.	15–17	M. ...	—	—	4	13	5	5	—	—	1	—	—	28	44	44	5
								F. ...	—	—	—	8	5	1	1	1	—	—	—	16			
40^5	„ 5	„ 470	11 „	„ „	53 19	2 53 E.	17	M. ...	—	—	12	3	1	—	—	—	—	—	—	16	24	24	5
								F. ...	—	—	1	2	1	3	1	—	—	—	—	8			
41^1	„ 6	„ 471	12 „	Brown Bank	53 14	3 10 E.	$16\frac{1}{2}$–17	M. ...	—	—	9	3	—	—	—	—	—	—	—	12	31	32	5
								F. ...	—	—	6	6	1	2	2	1	—	1	—	19			
41^2	„ 7	„ 472	12 „	„	53 10	3 26 E.	$15\frac{1}{2}$–$16\frac{1}{2}$	M. ...	—	—	5	3	2	5	—	—	—	—	—	15	37	37	5
								F. ...	—	—	2	6	3	8	2	—	—	1	—	22			
41^3	„ 8	„ 473	12 „	„	53 6	3 38 E.	$15\frac{1}{2}$–$16\frac{1}{2}$	M. ...	—	—	25	41	40	16	2	—	—	—	—	124	220	228	5
								F. ...	—	—	14	38	26	15	2	1	—	—	—	96			
41^4	„ 9	„ 474	13 „	Between Brown Bank and Texel Ground.	53 1	4 0 E.	$15\frac{1}{2}$–$16\frac{1}{2}$	M. ...	—	—	28	47	16	5	1	—	—	—	—	97	182	184	5
								F. ...	—	—	21	28	27	9	—	—	—	—	—	85			
42^1	„ 10	„ 475	13 „	„ „ „	52 57	4 14 E.	13–$15\frac{1}{2}$	M. ...	—	7	190	76	9	—	—	—	—	—	—	282	468	468	5
								F. ...	—	5	109	57	11	4	—	—	—	—	—	186			
42^2	„ 11	„ 476	13 „	„ „ „	52 51	4 26 E.	12–13	M. ...	—	43	447	132	8	—	—	—	—	—	—	630	1217	1231	5
								F. ...	—	24	413	135	15	—	—	—	—	—	—	587			
43	C 24–47	B 728–730, B(c)731–735, O 530–534	9–12 June, 08	Leman Ground	53 33	2 34 E.	15–18	M. ...	—	—	92	113	100	19	4	2	—	1	—	331	576	647	41
								F. ...	—	1	62	67	80	21	9	3	2	—	—	245			
44	CIV 27–46	B 788–790, B(c)791–793, O 555–559	22–24 Aug., 08	„ „	53 33	2 31 E.	15–17	M. ...	—	—	162	216	109	18	3	2	2	3	—	515	913	1018	33
								F. ...	—	—	132	168	75	8	4	5	1	5	—	398			
45^1	LXIX 1	B 400	6 Mar., 1906	Eastern Deep Water	52 6	2 41 E.	23–24	M. ...	—	4	9	5	9	—	—	—	—	—	—	27	38	38	$4\frac{1}{2}$
								F. ...	—	—	5	4	1	1	—	—	—	—	—	11			
45^2	„ 2	„ 401	7 „	„ „	52 11	2 59 E.	$18\frac{1}{2}$–23	M. ...	—	1	4	2	2	—	—	—	—	—	—	9	15	15	5
								F. ...	—	—	4	2	—	—	—	—	—	—	—	6			
45^3	„ 3	„ 402	7 „	„ „	52 19	3 4 E.	19–20	M. ...	—	—	6	3	—	—	—	—	—	—	—	9	18	18	$5\frac{1}{4}$
								F. ...	—	1	4	2	1	—	—	—	1	—	—	9			
45^4	„ 4	„ 403	7 „	„ „	52 33	3 6 E.	$18\frac{1}{2}$–20	M. ...	—	—	2	1	5	—	—	—	—	—	—	8	15	15	5
								F. ...	—	—	6	—	1	—	—	—	—	—	—	7			
45^5	„ 6	„ 405	10 „	„ „	52 22	2 40 E.	23–25	M. ...	—	—	2	7	2	1	2	1	—	—	—	15	18	18	5
								F. ...	—	—	—	—	1	—	—	1	—	1	—	3			
45^6	„ 7	„ 406	11 „	Between Middle and Winterton Shoals.	52 30	2 50 E.	22–25	M. ...	—	2	1	4	5	1	—	—	—	—	—	13	14	14	5
								F. ...	—	—	—	1	—	—	—	—	—	—	—	1			
46^1	LXXIV 17	B (c) 480	18 May, 1906	Brielle Ground	52 11	3 51 E.	12–$14\frac{1}{2}$	M. ...	—	5	128	54	12	—	—	—	—	—	—	199	393	1167	5
								F. ...	—	3	110	69	9	3	—	—	—	—	—	194			
46^2	„ 19	„ 481	18 „	Between Brielle Ground and Eastern Deep Water.	52 15	3 36 E.	$14\frac{1}{2}$–15	M. ...	—	5	202	112	21	7	—	—	—	—	—	347	631	633	5
								F. ...	—	6	132	121	21	4	—	—	—	—	—	284			
47	„ 21	„ 482	18 „	S. of Brown Ridges	52 19	3 21 E.	15–19	M. ...	—	1	17	25	14	2	—	—	—	—	—	59	93	97	5
								F. ...	—	—	8	15	8	3	—	—	—	—	—	34			
48^1	„ 23	„ 483	18 „	S.E. part of Eastern Deep Water	52 21	3 5 E.	19–20	M. ...	—	—	9	25	26	27	1	—	—	—	—	88	148	150	5
								F. ...	—	—	3	12	26	19	—	—	—	—	—	60			
48^2	„ 24	„ 484	19 „	Eastern Deep Water	52 22	2 50 E.	20–23	M ...	—	—	1	9	12	15	—	—	—	—	—	37	58	58	5
								F. ...	—	—	4	5	2	9	1	—	—	—	—	21			
49^1	LXXXIII 1	B 543	29 Nov. 1906	Off Sandettie Light Vessel ...	51 9	1 52 E.	20–22	M. ...	—	—	—	4	1	—	1	—	—	—	—	6	13	13	2
								F. ...	—	—	—	6	1	—	—	—	—	—	—	7			

49[2]	„	2	„	544	29	„	„	„	51	13	2	1 E.	17–20	M ...	—	—	4	4	1	—	—	—	—	—	—	9	12	12	2
														F. ...	—	—	—	2	—	—	—	1	—	—	—	—	3			
49[3]	„	4	„	545	29	„	„	„	51	14	1	46 E.	16–21	M. ...	—	—	2	2	1	1	—	—	—	—	—	6	7	7	1¾
														F. ...	—	—	—	—	1	—	—	—	—	—	—	1			
50	Lowestoft trawler "Ena."		...	...	2 Dec., 1907	West Kapelle Ground			ca51	50	ca3	14 E.	15–17	M. ...	—	8	68	147	21	—	—	—	—	—	—	244	400	?	—
														F. ...	—	4	70	79	3	—	—	—	—	—	—	156			
51	Lowestoft trawler "Forward."		...	...	1 Jan., 1908	Gabbard Deep Water			ca51	58	ca2	30 E.	23–25	M. ...	—	97	240	376	91	42	23	7	3	2	—	881	1108	1108	14
														F. ...	—	13	38	127	14	9	11	5	4	6	—	227			
52	XCVIII	63	B.c.	679	29 Apr., 1908	Schouwen Ground			51	48	3	11 E.	15–17	M. ...	—	1	97	20	19	2	—	—	—	—	—	139	248	294	3½
														F. ...	—	2	72	25	7	3	—	—	—	—	—	109			
53[1]	LXVIII	1	O	371	12 Feb., 1906	"Spion Kop" Ground			50	30	3	5 W.	26–28	M. ...	—	2	2	2	2	—	—	—	—	—	—	8	26	26	3½
														F. ..	—	3	5	7	2	—	—	—	—	1	—	18			
53[2]	„	3, 4	O	373, 374	27 „	Between Beer Head and Berry Head			50	28	3	5 W.	20–29	M. ...	—	13	24	12	5	—	—	—	—	—	—	54	84	84	7⅚
														F. ...	—	1	12	6	8	1	1	—	—	1	—	30			
54[1]	LXXXIV	1	O	421	28 „	Inside "Eastern Scruff"			50	26	2	57 W.	21–30	M. ...	—	—	9	5	3	—	—	—	—	—	—	17	33	33	5
														F. ..	—	2	8	4	1	—	1	—	—	—	—	16			
54[2]	„	2	„	422	1 Mar., 1907	„ „			50	25	2	49 W.	21–30	M. ...	—	6	8	8	2	1	—	—	—	—	—	25	64	64	5
														F. ...	—	1	13	19	4	—	2	—	—	—	—	39			
54[3]	„	3	„	423	1 „	„ „			50	25	2	51 W.	26–30	M. ...	—	2	3	—	—	—	—	—	—	—	—	5	26	26	5
														F. ...	—	1	6	8	3	1	1	1	—	—	—	21			
54[4]	„	4	„	424	1 „	„ „			50	34	2	45 W.	19–26	M. ...	—	—	1	1	—	—	—	—	—	—	—	2	6	6	5
														F. ...	—	3	—	1	—	—	—	—	—	—	—	4			
55[1]	Brixam Trawler.		Beam trawl		27 Nov., 1907	Teignmouth Bay			50	30	3	30 W.	3–4	M. ...	22	13	—	1	—	—	—	—	—	—	—	36	73	73	1¼
														F. ...	17	18	1	—	—	1	—	—	—	—	—	37			
55[2]	„	„	„	„	27 „	„ „			50	33	3	29 W.	4–4½	M. ...	3	14	4	2	1	—	—	—	—	—	—	24	53	53	1¼
														F. ...	4	19	1	1	1	3	—	—	—	—	—	29			
55[3]	„	„	„	„	28 „	„ „			50	34	3	27 W.	5½–6	M. ...	—	34	14	8	—	—	—	—	—	—	—	56	118	118	1
														F. ...	—	28	22	10	2	—	—	—	—	—	—	62			
56	...	...	...	...	27, 28 Nov., 1908.	„ „			50	34	3	30 W.	3½–4½	M. ...	—	16	207	20	12	3	—	—	—	—	48	306	533	533	10½
														F. ...	—	13	140	8	15	4	1	—	—	—	46	227			
57[1]	CXII	4	B	912	6 Aug., 1909	Tor Bay			50	26	3	31 W.	7–7	M. ...	—	123	7	1	—	—	—	—	—	—	1	132	225	233	2
														F. ...	—	83	4	5	1	—	—	—	—	—	—	93			
57[2]	„	5	„	913	6 „	„			50	26	3	31 W.	6–7	M. ..	—	39	3	2	1	—	—	—	—	—	—	45	69	69	2
														F. ...	—	22	2	—	—	—	—	—	—	—	—	24			
57[3]	„	7	„	915	6 „	„			50	25	3	32 W.	3–5	M. ...	—	20	2	—	—	—	—	—	—	—	—	22	42	42	1
														F. ...	—	15	3	1	—	1	—	—	—	—	—	20			
57[4]	„	8	„	916	7 „	„			50	26	3	31 W.	5–7	M. ...	—	81	4	3	—	—	—	1	—	—	—	89	170	170	2
														F. ...	—	66	11	—	3	1	—	—	—	—	—	81			
58[1]	„	9	„	917	9 „	Start Bay			50	19	3	34 W.	7–13	M. ...	—	2	2	—	—	—	—	—	—	—	—	4	18	18	1
														F. ...	—	3	3	3	2	2	—	—	—	1	—	14			
58[2]	„	10	„	918	9 „	„			50	18	3	37 W.	7–8	M. ...	—	21	6	2	3	2	—	1	—	—	—	35	70	70	3
														F. ...	—	13	2	5	4	5	3	1	1	1	—	35			
58[3]	„	11	„	919	9 „	„			50	18	3	36 W.	8	M. ...	—	4	6	4	—	1	—	—	—	—	—	15	37	37	2
														F. ..	—	4	3	9	3	2	—	1	—	—	—	22			
58[4]	„	12	„	920	9 „	„			50	18	3	37 W.	8	M. ...	—	7	7	6	2	—	—	—	—	—	—	22	48	48	3⅚
														F. ...	—	8	3	9	4	2	—	—	—	—	—	26			

The principal results of each part of the investigation will be found summarised at the end of each section.

Assistance.—The final drafting of Figs. 1 to 5 and 8, and the plotting of the sample numbers in their proper positions on the Chart, Plate I., were the careful work of Mr. J. Potter, of the Lowestoft Laboratory, who also helped me with certain calculations and tables. I wish to record here my thanks to Mr. Potter for his valuable assistance. I have also received useful clerical assistance from Mr. D. Cooper; and I am much obliged to Mr. H. H. Goodchild for his excellent photographs of otoliths reproduced on p. 142A, (Figs. 6 and 7). Finally, I have to thank my colleagues, Mr. G. T. Atkinson, and Miss R. M. Lee, for information and opinion on one or more points relating to their particular studies.

2. *Material.*

My Report for 1907 (*see* full reference p. 152), dealt with the ages of 7,863 plaice, this being the number of otoliths which had been collected up to the end of 1905. Since then, during the period 1906–09, the otoliths of 12,343 plaice have been collected and examined ; thus making *a total of* 20,206 *separate age-determinations for plaice collected* over a wide area of the North Sea and from the Western part of the Channel.

Material Collected during period 1906–09.—In Synoptic Table 1 (at the beginning), are recorded the numbers, and in Tables I.–IX.* (at the end), the individual length measurements, of plaice of different ages collected during 1906–09. The Synoptic Tables contains precise data regarding locality, depth of water, date, number of hours fishing, kind of fishing gear and other essential particulars concerning each sample.

The samples are numbered so as to follow the reference numbers in my 1907 Report, beginning with No. 29 and ending with No. 584. The primary arrangement of the data in these tables is according to the geographical relations of the fishing grounds on which the samples were taken, the secondary arrangement being chronological.

Plate I.—The approximate position of the "stations" (more precisely the central position between the shooting and hauling of the trawl) on which the 1906–09 samples were taken, are indicated on the *Chart, Plate I.*, by means of the appropriate reference numbers enclosed in squares and circles. On this Chart also the positions of the principal fishing grounds are roughly indicated by their ordinary names (as used by fishermen).

The following short synopsis shows from what region the 1906–09 material was obtained, the number of otoliths from each region, the months and years of collection, and the reference numbers of the samples.

Region.	Sample Reference Nos.	Month and Year of Collection, 1906–1909.	No. of Otoliths = No. of Age Determinations.
English East Coast (Bridlington, Wash)	29–31	June, Sept., 1906 ...	2,112
Flamborough Off Ground	32–35	Mar. and Oct., 1906, June and Aug., 1908.	510
Dogger, Clay Deep, &c.	36–38	Sept. and Oct., 1906	208
Texel—Leman Region	39–44	Mar. and May, 1906, June and Aug., 1908.	4,590
Southern Bight (Middle and Southern parts) ...	45–52	Mar. and May, 1906, November, 1906, December, 1907, Jan. and Apr., 1908.	3,229
Great West Bay (English Channel)	53–58	Feb.,1906,Mar.,1907, November, 1907–08, August, 1909.	1,694
Total (1906–09)			12,343
Total to end of 1905			7,863
Grand Total			20,206

* It will be noticed that I have included all plaice of nine years and over nine years of age in one group (IX+). This has been done partly for the sake of compactness (on account of small numbers), and partly because of the uncertainty as to the exact number of annual rings in the otoliths of many of the older fishes.

II.—General Summary of the Age-Composition of the Plaice Population on Various Fishing Grounds.

Tables 2 and 3.

Table 2.—Showing Age-Composition of Samples of Plaice from different Fishing Grounds (1904–09) together with the Extreme Range of Length, Range of Fifty per cent. and Average Length of each Age Group (sexes combined).

Note.—The Range of Fifty per cent. and Average Length are omitted in certain cases in which the number of specimens is too small to give sufficiently accurate results.

Name of Ground.	Sample Reference Nos.	Depth in Fathoms.	Month and Year.	Age Groups.	No. of Fish—Index Figures =Males.	Percentage of Total Sample	Extreme Range. cm.	Range of fifty per cent. cm.	Calculated Average Length. cm.	Amended Average Length. cm.
Bridlington Bay	4	3½–5	vii/05	II	94	51	12–22	14–17	15·7	16·2
				III	74	40	12–26	17–20	18·1	18·6
				IV	12	7	19–26	—	21·8	22·3
				V	1	+	—	—	—	—
				VI	2	1+	—	—	—	—
„ „	31	5–6	ix/06	I	5^{0}	1	12–13	—	—	—
				II	169^{96}	56	12–21	15–16	15·8	16·3
				III	97^{57}	32	15–25	18–20	19·0	19·5
				IV	29^{16}	10	16–27	19–22	20·7	21·2
				V	2^{2}	+	—	—	—	—
				VI	1^{1}	+	—	—	—	—
Mablethorpe	6	3½–9	viii/05	I	68	41	7–17	10–13	11·5	12·0
				II	70	42	11–22	15–18	16·6	17·1
				III	27	16	14–25	17–22	19·8	20·3
The Wash	5	1½–7	viii/05	0	10	3+	3–6	—	4·2	4·7
				I	183	65	7–18	8–10	9·2	9·7
				II	86	30	9–19	12–16	14·2	14·7
				III	6	1	14–19	—	—	—
„ „	29	?	vi/06	I	934	—	4–12	6–7	6·8	7·3
				II	632	—	6–19	9–13	10·7	11·2
				III	69	—	10–21	13–16	14·4	14·9
				IV	8	—	13–18	—	—	—
				Age ?	116	—	9–21	—	—	—
Lowestoft	1	3–5	v/05	I	96	21	5–10	6–8	7·1	7·6
				II	272	61	8–18	10–14	11·9	12·4
				III	75	17	9–21	13–16	14·7	15·2
				IV	3	+	—	—	—	—
Flamborough Off	34	24–25	vi/08	III	3^{2}	7	—	—	—	—
				IV	15^{4}	37	30–43	33–35	34·7	35·2
				V	14^{3}	35	30–43	35–39	37·0	37·5
				VI+	8^{2}	20	34–49	—	—	—
„ „	35	24–25	viii/08	II	1^{1}	+	—	—	—	—
				III	16^{5}	9	25–34	29–32	30·5	31·0
				IV	105^{37}	61	26–38	31–34	32·4	32·9
				V	31^{6}	18	29–41	34–38	36·1	36·6
				VI+	18^{7}	11	33–45	36–42	39·6	40·1
„ „	17	25–30	x/05	II	10^{8}	5	18–31	—	22·7	23·2
				III	37^{18}	18	21–36	25–32	28·9	29·4
				IV	87^{25}	44	25–44	33–37	35·2	35·7
				V	38^{19}	19	30–49	36–41	38·4	38·9
				VI+	30^{12}	14	31–58	38–48	44·0	44·5
„ „	33	29–31	x/06	II	2^{1}	+	—	—	—	—
				III	17^{9}	11	20–38	24–28	27·6	28·1
				IV	37^{17}	25	23–41	33–36	34·3	34·8
				V	42^{17}	28	29–44	37–41	38·2	38·7
				VI+	52^{7}	36	36–64	42–52	47·9	48·4

TABLE 2—*continued.*

Name of Ground.	Sample Reference Nos.	Depth in Fathoms.	Month and Year.	Age Groups.	No. of Fish—Index Figures =Males.	Percentage of Total Sample.	Extreme Range. cm.	Range of fifty per cent. cm.	Calculated Average Length. cm.	Amended Average Length. cm.
Flamborough Off	18, 19	25–31	i/05	I	3^{3}	1+	18–20	—	—	—
				II	3^{3}	1+	22–25	—	—	—
				III	30^{16}	21	24–36	27–32	29·8	30·3
				IV	44^{37}	31	25–41	32–36	34·0	34·5
				V	41^{36}	28	23–43	36–40	37·1	37·6
				VI+	24^{16}	17	33–44	—	38·8	39·3
„ „	32	24–30	iii/06	I	1^{1}	+	—	—	—	—
				II	16^{10}	11	16–34	19–27	22·8	23·3
				III	21^{13}	14	15–38	24–33	29·2	29·7
				IV	73^{18}	49	23–43	35–39	36·7	37·2
				V	22^{5}	15	26–46	33–41	37·4	37·9
				VI+	16^{2}	10	28–55	—	43·4	43·9
Dogger : South Part ...	14	$10\frac{1}{2}$–14	x/05	II	5^{2}	9	25–30	—	—	—
				III	6^{2}	11	25–33	—	—	—
				IV	23^{10}	42	28–46	31–36	34·3	34·8
				V	13^{3}	24	30–48	—	41·9	42·4
				VI+	8^{0}	14	44–58	—	—	—
„ „ „ ...	36	10–15	x/06	II	1^{1}	3	29–	—	—	—
				III	3^{1}	10	33–41	—	—	—
				IV	5^{0}	17	39–41	—	—	—
				V	4^{1}	14	40–48	—	—	—
				VI+	16^{0}	56	45-66	—	56·7	57·2
„ „ „ ...	15	$11\frac{1}{2}$–17	i/05	III	22^{8}	40	25–34	27–31	29·1	29·6
				IV	31^{6}	56	29–44	32–36	34·3	34·8
				V	3^{1}	4	—	—	—	—
„ „ „ ...	16	9–17	iii/04	II	2^{0}	+	21–24	—	—	—
				III	62^{12}	38	22–37	27–32	29·8	30·3
				IV	50^{17}	30	29–41	33–38	35·3	35·8
				V	26^{2}	15+	34–48	38–43	41·1	41·6
				VI+	26^{0}	15+	41–64	45–50	48·0	48·5
Clay Deep, edge of Dogger	13	20–24	x/05	III	17^{7}	13	24–32	26–30	27·8	28·3
				IV	86^{32}	67	24–39	30–34	31·8	32·3
				V	18^{8}	14	31–47	34–40	37·7	38·2
				VI+	7^{0}	5	45–53	—	—	—
Horn Reef, Outer	37	21–35	ix/06	II	4^{1}	1	—	—	—	—
				III	111^{59}	69	22–32	24–27	25·8	26·3
				IV	26^{17}	16	24–34	28–31	29·3	29·8
				V	11^{0}	7	28–46	30–39	35·2	35·7
				VI+	11^{2}	7	42–61	—	46·1	46·6
Leman Ground and Swarte Bank.	40	13-17	v/06	I	3^{3}	+	12–15	—	—	—
				II	177^{88}	26	9–26	14–19	16·5	17·0
				III	253^{122}	37	12–31	20–25	22·6	23·1
				IV	180^{99}	26	19–36	25–30	27·8	28·3
				V	60^{32}	9	20–42	29–34	31·4	31·9
				VI+	11^{4}	1	32–42	—	37·3	37·8
Leman Ground	43	15–18	vi/08	I	1^{0}	+	—	—	—	—
				II.	154^{92}	27	13–27	16–19	17·9	18·4
				III	180^{113}	31	16–32	22–25	23·5	24·0
				IV	180^{100}	31	19–37	26–30	28·3	28·8
				V	40^{19}	7	23–39	31–35	32·3	32·8
				VI+	21^{7}	3	30–41	35–40	36·8	37·3
„ „	44	15–17	viii/08	II	294^{162}	32	16–28	20–23	21·5	22·0
				III	384^{216}	43	19–32	24–27	25·1	25·6
				IV	184^{109}	20	22–38	26–29	27·8	28·3
				V	26^{18}	3	28–37	30–33	31·7	32·2
				VI+	14^{10}	1	31–39	—	35·1	35·6

TABLE 2—*continued.*

Name of Ground.	Sample Reference Nos.	Depth in Fathoms.	Month and Year.	Age Groups.	No. of Fish—Index Figures =Males.	Percentage of Total Sample.	Extreme Range. cm.	Range of fifty per cent. cm.	Calculated Average Length. cm.	Amended Average Length. cm.
Leman Ground	9	15½–17	ix/05	I	34^{14}	10	12–20	14–17	15·6	16·1
				II	66^{35}	20	17–29	22–25	23·4	23·9
				III	119^{64}	36	17–33	25–28	26·2	26·7
				IV	82^{44}	25	24–41	29–33	31·1	31·6
				V	11^{4}	3	32–41	—	37·3	37·8
				VI+	17^{5}	6	35–50	—	41·6	42·1
„ „	21	12–17	x/05	I	18^{8}	8	17–22	—	—	—
				II	65^{32}	29	19–31	23–26	24·6	25·1
				III	50^{25}	22	23–35	28–31	28·8	29·3
				IV	64^{21}	28	24–40	31–34	32·7	33·2
				V	17^{7}	7	33–40	35–39	36·6	37·1
				VI+	12^{1}	6	35–53	—	44·6	45·1
South Botney (E. of Leman) Ground.	20	17½–20	i/05	I	1^{0}	1+	16 —	—	—	—
				II	4^{2}	6+	23–29	—	—	—
				III	38^{12}	62	23–37	26–29	28·0	28·5
				IV	10^{3}	16	28–37	—	32·4	32·9
				V	4^{1}	6+	40–47	—	—	—
				VI+	5^{0}	8	39–54	—	—	—
Leman Ground and Smith's Knoll.	39	14–25	iii/06	I	32^{16}	12	12–24	15–18	16·6	17·1
				II	99^{57}	39	16–28	21–25	22·9	23·4
				III	80^{41}	30	19–34	24–29	26·2	26·7
				IV	33^{15}	13	20–39	27–33	30·4	30·9
				V	14^{5}	5	27–41	—	36·2	36·7
Brown Bank	41	15½–17	v/06	II	110^{67}	23	11–24	14–18	16·2	16·7
				III	171^{93}	37	14–23	21–27	24·0	24·5
				IV	115^{58}	24	18–35	26–30	27·9	28·4
				V	60^{26}	13	22–28	29–34	31·7	32·2
				VI+	13^{3}	3	33–62	—	38·3	38·8
„ „	10	14–16	ix/05	I	9^{5}	1+	14–21	—	—	—
				II	208^{96}	37	17–29	20–23	21·7	22·2
				III	228^{115}	40	20–34	24–28	25·8	26·3
				IV	107^{50}	19	22–36	28–31	29·4	29·9
				V	7^{4}	1+	—	—	—	—
				VI+	4^{1}	1+	—	—	—	—
The Texel	42	12–15½	v/06	I	79^{50}	5	8–15	10–12	10·7	11·2
				II	1159^{637}	69	9–22	12–15	13·7	14·2
				III	400^{208}	24	12–28	18–22	20·0	20·5
				IV	43^{17}	2	17–32	23–28	25·4	25·9
				V	4^{0}	+	23–37	—	—	—
„	$11^{1,2}$	12–14	ix/05	I	10^{6}	1+	—	—	17	—
				II	403^{236}	65	16–28	19–21	20·1	20·6
				III	170^{86}	27	19–30	22–26	24·1	24·6
				IV	37^{23}	6	21–34	26–30	27·9	28·4
Off Petten	$11^{3,4}$	7–12	ix/05	I	149^{86}	33	11–18	13–15	13·8	14·3
				II	252^{120}	57	13–25	16–19	17·4	17·9
				III	38^{11}	8	14–28	19–25	21·9	22·4
				IV	9^{5}	2	21–30	—	—	—
Brielle Ground	46	12–15	v/06	I	19^{10}	2	9–15	11–13	12·4	12·9
				II	572^{330}	56	9–25	14–18	16·4	16·9
				III	356^{166}	35	13–31	19–23	21·3	21·8
				IV	63^{33}	6	20–33	25–28	26·4	26·9
				V	14^{7}	+	23–34	—	28·4	28·9
South of Brown Ridges ...	47	15–19	v/06	I	1^{1}	1+	—	—	—	—
				II	25^{17}	27	13–24	15–19	17·4	17·9
				III	40^{25}	43	18–36	21–25	23·4	23·9
				IV	22^{14}	24	22–33	26–28	28·6	29·1
				V	5^{2}	5+	25–30	—	—	—

TABLE 2—*continued.*

Name of Ground.	Sample Reference Nos.	Depth in Fathoms.	Month and Year.	Age Groups.	No of Fish—Index Figures =Males.	Percentage of Total Sample.	Extreme Range. cm.	Range of fifty per cent cm.	Calculated Average Length. cm.	Amended Average Length. cm.
Eastern Deep Water ...	48	19–23	v/06	II	17^{10}	8	13–23	17–21	18·9	19·4
				III	51^{34}	25	16–34	22–27	24·5	25·0
				IV	66^{38}	32	20–38	26–31	28·9	29·4
				V	70^{42}	34	24–39	30–34	31·9	32·4
				VI+	2^{1}	1	—	—	—	—
„ „ ...	45	18½-25	iii/06	I	8^{7}	7	14–19	—	—	—
				II	43^{24}	36	16–31	19–23	21·7	22·2
				III	31^{22}	26	20–36	24–29	27·2	27·7
				IV	27^{23}	23	22–37	28–34	30·8	31·3
				V	3^{2}	2+	33–38	—	—	—
				VI+	5^{3}	5	37–47	—	—	—
Gabbard Deep Water ...	51	23–25	i/08	I	110^{97}	10	14–23	16–19	17·4	17·9
				II	278^{240}	25	15–31	19–22	21·0	21·5
				III	503^{376}	45	16–34	23–26	24·6	25·1
				IV	105^{91}	9	21–40	27–32	29·6	30·1
				V	51^{42}	5	23–43	31–37	34·0	34·5
				VI+	61^{35}	6	27–64	35–45	—	—
Schouwen Ground	52	15–17	iv/08	I	3^{1}	1	—	—	—	—
				II	169^{97}	68	12–23	15–18	16·5	17·0
				III	45^{20}	18	16–25	19–21	20·5	21·0
				IV	26^{19}	10	19–27	22–24	22·9	23·4
				V	5^{2}	2	—	—	—	—
„ „	50	15–17	xii/07	I	12^{8}	3	18–21	—	19·0	19·5
				II	138^{68}	34	18–28	21–23	21·8	22·3
				III	226^{147}	57	20–31	22–25	23·8	24·3
				IV	24^{21}	6	23–29	26–28	26·4	26·9
Sandettie	26	19–20	xi/04	I	4^{4}	2	20–22	—	—	—
				II	15^{15}	11	20–27	—	24·6	25·1
				III	44^{39}	31	21–35	27–31	28·4	28·9
				IV	63^{54}	46	27–42	30–34	32·2	32·7
				V	13^{12}	9	30–40	—	34·0	34·5
				VI+	2^{1}	1	38–42	—	—	—
Great West Bay	28	17–23	ii/04	I	22^{14}	25	12–23	17–20	18·4	18·9
				II	45^{17}	52	19–33	23–27	25·4	25·9
				III	18^{6}	21	22–37	30–32	30·8	31·3
				IV	2^{2}	2	33–35	—	—	—
„ „	53	20–29	ii/06	I	19^{15}	18	16–28	22–25	23·2	23·7
				II	43^{26}	40	19–37	24–30	27·3	27·8
				III	27^{14}	25	23–38	30–34	31·4	31·9
				IV	14^{4}	13	30–41	33–36	35·2	35·7
				V	1	1	43	—	—	—
				VI+	3	2+	48–56	—	—	—
„ „	54	19–30	ii, iii/07	I	15^{8}	12	15–29	19–24	22·0	22·5
				II	48^{21}	37	17–34	23–26	25·0	25·5
				III	46^{14}	36	22–40	26–31	28·9	29·4
				IV	13^{5}	10	23–37	—	32·6	33·1
				V	2^{1}	1	36–38	—	—	—
				VI+	5^{0}	4	40–51	—	—	—
Teignmouth Bay	27	4½–7	xi/04	I	5^{3}	8	20–25	—	—	—
				II	31^{18}	50	22–32	26–28	27·1	27·6
				III	18^{4}	29	28–36	31–34	32·3	32·8
				IV	5^{2}	8	30–35	—	—	—
				VI+	3^{0}	5	41–51	—	—	—
„ „	55	3–6	xi/07	0	46^{25}	19	9–12	10–11	10·3	10·8
				I	126^{61}	52	13–28	15–22	19·4	19·9
				II	42^{18}	17	21–35	26–30	28·2	28·7
				III	22^{11}	9	27–40	30–33	32·3	32·8
				IV	4^{1}	1+	29–40	—	—	—
				V	4^{0}	1+	40–43	—	—	—

TABLE 2—*continued.*

Name of Ground.	Sample Reference Nos.	Depth in Fathoms.	Month and Year.	Age Groups.	No. of Fish—Index Figures =Males.	Percentage of Total Sample.	Extreme Range. cm.	Range of fifty per cent. cm.	Calculated Average Length. cm.	Amended Average Length. cm.
Teignmouth Bay	56	3½–4½	xi/08	I	29^{16}	—	15–26	21–23	22·0	22·5
				II	347^{207}	—	17–35	26–29	27·5	28·0
				III	28^{20}	—	25–39	30–34	31·8	32·3
				IV	27^{12}	—	28–40	32–36	34·2	34·7
				V	7^{3}	—	30–39	—	—	—
				VI+	1^{0}	—	—	—	—	—
				Age ?	94^{48}	—	8–13	—	—	—
Tor Bay	57	3–7	viii/09	I	449^{263}	89	12–26	16–19	17·8	18·3
				II	37^{16}	7	20–33	25–29	27·4	27·9
				III	12^{6}	2	24–43	—	32·5	33·0
				IV	5^{1}	1	30–45	—	—	—
				V	2^{0}	+	43–45	—	—	—
				VI+	1^{1}	+	39–	—	—	—
Start Bay	58	7–13	viii/09	I	62^{34}	37	12–24	17–19	18·4	18·9
				II	32^{21}	19	20–33	26–30	28·2	28·7
				III	37^{11}	21	24–38	31–34	32·2	32·7
				IV	18^{5}	10	31–47	—	35·8	36·3
				V	14^{3}	8	33–48	—	38·8	39·3
				VI+	9^{1}	5	37–61	—	—	—

From the data given in Tables 2 and 3 a broad classification of the fishing grounds according to the percentage of different ages in our samples of plaice taken thereon is possible and should be useful (in spite of the fact that only approximate representative value can be attached to the percentages in question) as showing the kind of knowledge aimed at and the method by which more accurate information might be obtained if a sufficient number of samples from each ground were procurable.

The following classification into three groups of grounds, which accords well with geographical and bathymetrical relations, takes account of :—

1. The percentage of fish less than three years of age.
2. The percentage of fish less than four years of age.
3. The percentage of fish over six years of age.*
4. The dominant age group.

TABLE 3.—Percentage of fish less than three years old, and less than four years old respectively, in samples of PLAICE from various grounds, with the Predominant Age Group in each sample.

Name of Fishing Ground.	Depth (fms.).	Month and Year.	Predominant Age Groups.	Per cent. of Total Sample.	
				< 3 years old.	< 4 years old.
Bridlington Bay	3–5	vii/05	II	51	91
,, ,, ...	1–3	ix/06	II	57	89
Mablethorpe	3–9	viii/05	I, II	83	100
Lowestoft	3–5	v/04	II	82	99
Flamborough Off Ground	24–25	vi/08	IV	0	7
,, ,, ,, ...	24–28	viii/08	IV	+	9
,, ,, ,, ...	25–30	x/05	IV	5	23
,, ,, ,, ...	26–37	x/06	V	+	11
,, ,, ,, ...	23–31	i/05	IV	2	23
,, ,, ,, ...	24–30	iii/06	IV	11	25
Dogger	10–18	x/05	IV	9	20
,, ...	10–15	x/06	IV	3	13
,, ...	11–17	i/05	IV	0	40
,, ...	9–17	iii/04	III	+	38
Clay Deep, edge of Dogger	20–24	x/05	IV	0	13
Horn Reef Outer Ground	21–25	ix/06	III	1	70

* One may call these "adult" plaice since all, with few exceptions, must have spawned at least *once*. *See* Wallace, 1909, pp. 67–69.

TABLE 3—*continued.*

Name of Fishing Ground.	Depth (fms.).	Month and Year.	Predominant Age Groups.	Per cent. of Total Sample.	
				< 3 years old.	< 4 years old.
Leman Ground, &c.	13–17	v/06	III	26	63
„ „	15–18	vi/08	III	27	58
„ „	15–17	viii/08	III	32	75
„ „	14–17	ix/05	III	30	66
„ „	15½–17	x/05	II–IV	37	59
„ „	14–25	iii/06	II	51	81
South Botney Ground	17½–20	i/05	III	7	69
Brown Bank „	15½–17	v/06	III	23	60
„ „ „	14–16½	ix/05	III	38	78
Texel Ground	12–15½	v/06	II	74	98
„ „	12–14	ix/05	II	66	93
Off Petten (Dutch Coast)	7–12	„	II	89	97
Brielle Ground	12–15	v/06	II	58	93
South of Brown Ridges	15–19	„	III	28	71
Eastern Deep Water	19–23	„	V	8	33
„ „ „	18½–23	iii/06	II	43	69
Gabbard Deep Water	23–25	i/08	III	35	80
Schouwen Ground	15–17	iv/08	II	69	87
„ „	15–17	xii/07	III	37	93
Sandettie	19–21	xi/04	IV	12	43
Great West Bay, Offshore	17–23	ii/04	II	77	98
„ „ „ „	20–29	ii/06	II	58	83
„ „ „ „	19–30	ii/07	II	49	85
Teignmouth Bay	4½–7	xi/04	II	58	87
„ „	3–6	xi/07	I	88	97
Tor Bay	3–7	viii/09	I	96	98
Start Bay	7–13	„	I	55	76

A. Central Grounds.—With less than 15 per cent. under three years ; less than 50 per cent. under four years ; and more than 10 per cent. over six years of age. Plaice of the fifth year (IV. group) generally predominate.

Examples :—Dogger (South part) ... ... 9–20 fathoms.
Flamborough Off Ground ... ... 20–40 „
Clay Deep, edge of Dogger, ... 20–24 „

The single sample from the last-named ground (October, 1905) had, however, only 5 per cent. over six years of age.

The population of the Deep Water of the Southern Bight of the North Sea in winter appears to be intermediate in character between the A and the following B grounds. Our samples from this region had all less than 10 per cent. of fish over six years (Sample Nos. 26, 45, 48, 49, 51), but the predominant age group varied from II. to V. in the five samples.

B. Intermediate Grounds.—With not more than 50 per cent. under three years ; 50 per cent. to 75 per cent. under four years ; and less than 10 per cent. over six years.

Plaice of the fourth year (III. group) generally preponderate on these grounds.

Examples :—Leman Ground and Bank ... ... 15–17 fathoms.
Brown Bank Ground and Brown Ridges ... 15–17 „
South Botney Ground ... ... 17–20 „
Horn Reef Outer Ground ... ... 21–25 „

C. Young Fish Grounds.—With more than 50 per cent. under three years ; more than 75 per cent. under four years ; and not more than about 5 per cent. over six years.

Plaice of the third year (II. group) and second year (I. group) predominate on these grounds.

a. Depth less than 10 fathoms.

Examples :—Bridlington Bay ... ... With about 1 per cent. over six years of age.
The Wash ... ... With none over six years of age.
Off Mablethorpe ... ... „ „ „
Off Lowestoft ... ... „ „ „
Off Petten (Dutch coast) ... ... „ „ „
Teignmouth, Tor, and Start Bays (Devon). With up to 5 per cent. over six years of age.

b. Depth more than 10 fathoms.

Examples:—Texel Ground, 12–15 fathoms ... With none over six years.
Brielle Ground, 12–15 fathoms ... ,, ,, ,,
Schouven Ground, 15–17 fathoms... ,, ,, ,,
Great West Bay Offshore, 17–30 fathoms. With up to 5 per cent. over six years of age.

The predominance of the II. group and the presence of considerable numbers (12–25 per cent.) of the I. group on the *offshore* grounds of Great West Bay is a noteworthy feature as contrasted with similarly situated grounds in the North Sea, such as the Flamborough Off Ground, especially when the depth of water is taken into account. Now it is known from other evidence* that these offshore grounds in Great West Bay are spawning grounds for plaice. We also know that the plaice in this region are decidedly larger for their age than in the North Sea,† and that they come to maturity at an earlier average age.‡ It is, therefore, not surprising that the spawning shoals in this region contain a larger proportion of young fish than in the North Sea (cf. Flamborough Off Ground and Southern Deep Water in winter).

According to our samples, Bridlington Bay and the South Devon Bays§ are distinguished from other sampled inshore grounds within the 10 fathom line, either on the Dutch or English sides of the North Sea, by the presence (though in small numbers) of fishes over six years of age. These amounted to about 1 per cent. in our samples from Bridlington Bay, and about 5 per cent. in the case of the Devon Bays.

Perhaps the main cause of the absence or rare occurrence of older plaice close inshore on the Dutch coast of the North Sea and on parts of the English coast‖ is to be found either in the absence of suitable food for the older fish, or, in the annual production of a large "head" of young plaice, which must tend to enforce emigration at early age. In Bridlington Bay and the South Devon Bays it is evident, from our investigations, that the annual production of young plaice is small compared with that on the Dutch coast of the North Sea, and on the other parts of the English East coast investigated where (on the grounds nearest the coast) no plaice older than four years of age have been found in our samples.

Seasonal Changes.—On various offshore grounds in the North Sea we found a greater proportion of the younger age-groups in autumn and winter than in the spring and summer.

Thus, on the Flamborough Off Ground the percentages of fish less than three years old, and less than four years old, respectively, on different occasions were as follows :—

—	June, 1908.	Aug. 1908.	Oct. 1908.	Oct. 1906.	Jan. 1905.	March, 1906.
Less than three years old (per cent.) ...	0	<1	5	<1	2	11
Less than four years old (per cent.) ...	7	9	23	11	23	25

So far as it goes this series indicates a rise in the proportion of the younger age groups in autumn and winter (I.-III.) as compared with summer.

If we take the 1 group above we find that it was present only in our samples taken in January and March, and not at all in June, August or October. In January (1905) and March (1906) the few examples of this group caught on the ground were ripe males.

These few results are in complete agreement with Garstang's investigations¶ which show that the maximum density of small plaice (*i.e.* under 30 cm.) on the Flamborough Off Ground occurred in winter, while the seasonal variations in the density of large plaice were very slight.

On the South part of the Dogger also we found a larger percentage of the younger age groups (chiefly III) in January (1905) and March (1906) than in October (1905 and 1906).

Thus :—

—	Oct. 1905.	Oct. 1906.	Jan. 1905.	March 1906.
Less than four years old (per cent.) ...	20	13	40	38

* Kyle, quoted in Garstang, 1903, p. 494.
† See Tables 15 and 16 and I.–IX., in present report.
‡ Wallace, 1909, p. 67 and *seq.*
§ Teignmouth, Tor, and Start (*see* chart, Plate I.).
‖ *e.g.* The Wash and the Lincolnshire and Suffolk coast.
¶ Garstang, 1909, p. 133, &c.

This agrees with Garstang's observation* that the maximum density of small plaice occurs on this part of the Bank in winter (I–III).

Again our six samples from the Leman region indicate a more or less gradual rise in the percentage of young fish from spring to winter ; thus :—

—	May 1906.	June 1908.	Aug. 1908.	Sept. 1905.	Oct. 1905.	March 1906.
Less than three years old (per cent.) ...	26	27	32	30	37	51

The seasonal differences in the percentage of the I group *alone* are still greater :—

—	May 1906.	June 1908.	Aug. 1908.	Sept. 1905.	March 1906.	Oct. 1905.
I. group (per cent.)	<1	<1	0	10	8	12

The seasonal changes in the age-composition of the population in the Leman region, indicated by these results, may be fairly attributed to the offshore migration of young plaice from the Dutch coast, which takes place in the course of the summer and to which reference will be made in the next section ; combined with an autumn emigration from this region of older fishes to more Southern regions for Spawning purposes.†

Finally to be noted is the presence in the central and southernmost parts of the Southern Bight *in winter* of the I group, consisting chiefly of ripe males.

Thus on the Eastern edge of the Southern Deep Water the I group was present in March 1906, when the fishes of this group would be nearly two years old. In May 1906, however, the I. group (then just over one year old) was not present in our catches from the edge of the Deep Water. On the former occasion seven out of the eight fish belonging to the I. group were males, of which at least three were certainly ripe.‡ Again, the I. group formed about 10 per cent. of the sample from the Deep Water near the Gabbard Light Vessel in January 1908 : and 97 out of 110 were males of which at least 88 were ripe.§ Finally, near Sandettie Light Vessel in November 1904 the only fish (four in number) belonging to the I. group were males, all probably ripening.‖

Summary.—(1) The Seasonal changes in the age-composition of our samples from the Flamborough Off, Leman and Brown Bank grounds, and the Southern Deep Water indicate that there is a greater proportion of young plaice on these grounds in autumn and winter (I.-III.) than in spring and summer.

(2.) Plaice of the second year (I group) which are confined to grounds near the Coast in spring and summer appear on the above mentioned offshore grounds in autumn and winter. (*See also* next section, p. 126).

III. Evidence of Summer Offshore Migration in the Texel-Leman Region.

Table 4 *and Charts, Figs.* 1 *to* 5.

That the region that lies between the North West Coast of Holland and the Leman Banks (*see* Chart, Plate 1) is one of two main tracks¶ along which young plaice emigrate in summer from the Continental coast of the North Sea, was first demonstrated by Garstang in 1905 by means of marking experiments and a study of the seasonal changes in the density-distribution of small plaice.** These earlier conclusions have been amply confirmed by later English marking experiments (as yet unpublished) and size distribution data.††

In Garstang's report of 1909 on the quantitative distribution of plaice in the North Sea, based upon the trawling data furnished by the various International Research Steamers, the seasonal changes in the density-distribution of *small* plaice are graphically displayed on two charts, on which contour lines are drawn representing the seaward limit of particular grades of density in the first half year and second half year respectively.

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* Garstang, 1909, p. 128.
† *See* Section III.
‡ Wallace, 1909, p. 88, Table IIa., Sample No. 28.
§ Wallace, 1909, Table IIa., Sample No. 26.
‖ Wallace, 1909, Table IIa., Sample No. 31.
¶ The other is off Horn Reef on the Danish coast.
** Garstang, 1905, A., pp. 20, &c.; 1905, B., pp. 87–93, &c.; 1905, C., p. 21, 22.
†† Garstang, 1909, Plates V. and VI., &c.

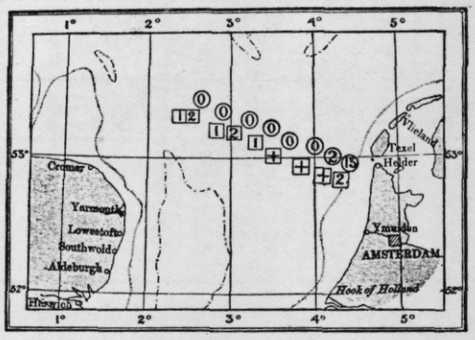


FIG. 1.—Catch per hour of the I group,
○ = May, 1906 (Covered Beam Trawl),
□ = September, 1905 (Otter Trawl).

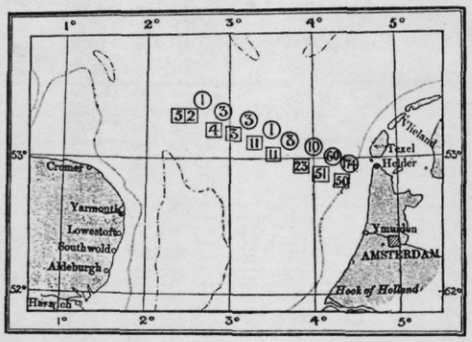


FIG. 2.—Catch per hour of the II group,
○ = May, 1906 (Covered Beam Trawl),
□ = September, 1905 (Otter Trawl).

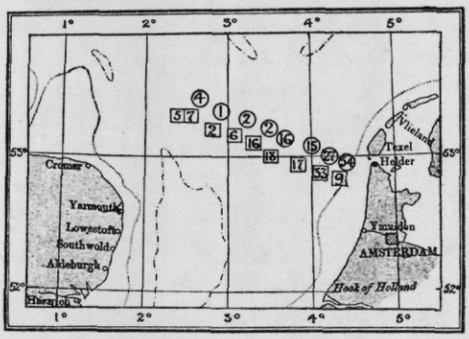


FIG. 3.—Catch per hour of the III group,
○ = May, 1906 (Covered Beam Trawl),
□ = September, 1905 (Otter Trawl).

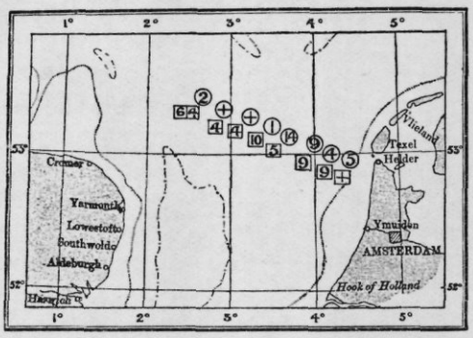


FIG. 4.—Catch per hour of the IV group,
○ = May, 1906 (Covered Beam Trawl),
□ = September, 1905 (Otter Trawl).

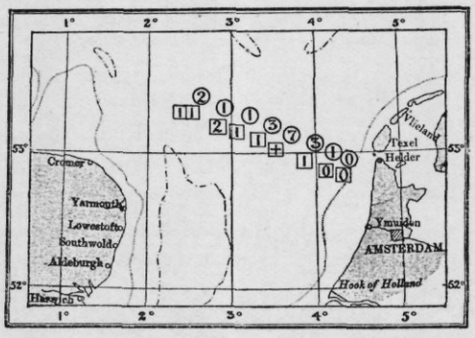
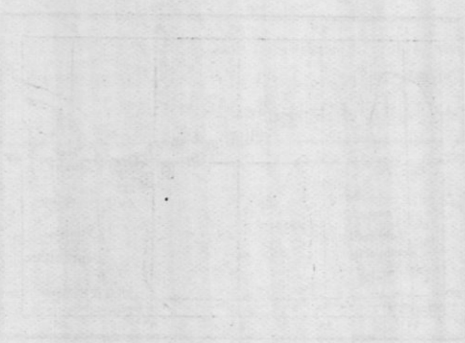


FIG. 5.—Catch per hour of the V group,
○ = May, 1906 (Covered Beam Trawl),
□ = September, 1905 (Otter Trawl),



The seasonal change in the positions of the density contour-line to be seen on comparing these two charts is thus described by Garstang :—" If we take the limit of 50 per hour as approximately separating the areas of low and high density of small fish, we see that in the first half year the limit runs nearly parallel with the Island belt at a distance of about 30–40 miles along the whole extent from Horn Reef to Texel " . . . . . " In the second half year (VII-XII) the dense bands off Horn Reef-Sylt and Texel-Ymuiden are seen to have broken up, and the line of low density has been pushed far seawards especially off these two points as centres. The two areas Horn Reef-Sylt and Texel-Ymuiden may fitly be described as the chief centres of the summer expansion and the lines running north-westwards from them as the main axes of emigration."*

Redeke† speaking of the Dutch coast generally, draws attention to an " annual migration of young fish in summer and autumn from the coastal zone to deeper waters, where they supplant the older plaice which by degrees begin to seek the spawning places " (translation). Redeke also refers to a migration in winter and spring in the opposite direction of fishes " awakened from hibernation " and plaice which have recently spawned (" aus der Winterruhe erwachten und ausgelaichten Schollen "). This, he says, is also to be looked upon as a feeding migration (" nahrungswanderung "). As evidence of this shorewards-directed spring migration Redeke mentions results obtained by marking and liberating plaice on the Brown Bank Ground in January and March. " In the first two or three months the recaptured plaice were, with few exceptions, caught nearer the Dutch coast than where they were set out " (translation).

In the present section a third and distinct class of facts will be brought forward as confirmatory evidence of the Texel-Leman summer migration. Having in September, 1905, and, again in May, 1906, determined (by means of otolith examination) the ages of all the plaice caught in continuous series of hauls extending in a straight line from " inside " the Haaks (Texel) Light Vessel to the Leman Ground (near the Banks), we are able to state fo each haul the number of a particular age-group caught per hour at various distances from the Dutch Coast along this track. These data will form the basis of our comparison of the density-distribution of the different age groups in spring and autumn ; and attention will be directed to the comparison as evidence of offshore migration.

The data to which reference is intended are recorded in the accompanying table (Table 4) and are graphically displayed in the five small charts (Figs. 1–5).

The use of different fishing gears on the two occasions, viz., the small-mesh-covered beam trawl in May 1906 and the commercial otter trawl (without small-mesh covering) in September 1905 should not affect the validity of the comparison contemplated ; since to determine whether there is evidence of a shifting seawards of the mass of each age-group in the interval between May and September, it is only necessary that the catches per hour of the different hauls of the May line be comparable *inter se* ; and the same with the September series. The important point, therefore, so far as fishing gear is concerned, is that the same net was consistently used throughout in trawling over the track on each occasion.

TABLE 4.—Catch-per-hour of Different Age Groups of PLAICE in May (1906) and September (1905), at different Distances from the Dutch Coast, from the " Texel " to the Leman Ground.

May, 1906. (Covered Beam Trawl.)								September, 1905. (Otter Trawl.)							
Sample No.	Central Position of Haul.	No. of Miles from Dutch Coast.	Age Groups. Catch per hours' Fishing. I.	II.	III.	IV.	V.+	Sample No.	Central Position of Haul.	No. of Miles from Dutch Coast.	Age Groups. Catch per hours' Fishing. I.	II.	III.	IV.	V.+
	° ′ ° ′								° ′ ° ′						
42^2	52 51—4 26 E.	10	13·5	174·0	54·0	4·6	—	11^2	52 52—4 25 E.	10	2·0	50·1	9·3	0·2	—
42^1	52 57—4 14 E.	18	2·4	59·8	26·6	4·0	0·8	11^1	52 55—4 11 E.	19	0·5	51·3	33·4	9·0	—
41^4	53 1—4 0 E.	27	—	9·9	15·2	8·7	3·0	10^3	53 0—3 53 E.	32	0·5	22·8	17·4	8·6	1·0
41^3	53 6—3 38 E.	42	—	8·1	16·4	13·7	7·5	10^2	53 4—3 33 E.	44	0·4	11·0	17·8	5·4	0·2
41^2	53 10—3 26 E.	50	—	1·4	1·8	1·0	3·2	10^1	53 8—3 17 E.	54	1·3	11·4	15·7	10·1	1·3
41^1	53 14—3 10 E.	61	—	3·1	1·7	0·2	1·2	9^3	53 12—3 2 E.	64	2·2	3·2	6·2	3·7	1·2
40^5	53 19—2 53 E.	73	—	2·6	1·0	0·4	0·8	9^2	53 16—2 48 E.	73	1·2	3·7	2·5	3·7	2·5
40^4	53 23—2 37 E.	83	—	0·8	4·2	2·0	1·8	9^1	53 19—2 32 E.	84	1·5	3·5	6·0	5·3	1·1

Even a slight examination of the catch per hour data given in Table 4 and plotted on the small charts (Figs. 1 to 5) gives a distinct impression of the greater seaward

* Garstang, 1909, p. 94. † Redeke, 1909, pp. 49–52.

spread of the mass of each age group in September than in May. This is particularly noticeable in the case of the I group. Referring to Fig. I. we see that *in May plaice belonging to this group were caught only in the neighbourhood of the Dutch coast, and not at all on the offshore grounds (Brown Bank and Leman) ; whereas in September the I. group was taken in all the hauls of the series from the nearest inshore to the furthest offshore station.* The seasonal difference in the distribution of the I. group is therefore well marked. As has been said, the beam trawl with small mesh was employed throughout in May, so that if any fishes of the I. group had been present on the offshore stations they would certainly have been caught. On the other hand, if this net, instead of the otter trawl (with no small mesh covering net) had been used in September, greater numbers of the I. group would have been caught on this occasion than actually were ; and the difference in density-distribution as compared with May would have been emphasised still more.

To obtain an approximate quantitative measure of the *spread* of each age group in May and September respectively, I have calculated from the data given in Table 4 the approximate position, with reference to the Dutch coast, of what may be called the *Centre of Density* of each age group* in May and September, respectively. This position was found by multiplying the catch per hour of each age group in each haul of the May or September series by the number of miles (of the central position) from the Dutch coast, adding up the products thus obtained, and dividing their sum by the sum of the individual catches per hour.

Thus the approximate position of the *Centre of Density* of the III. group in May, 1906, was found by means of the calculation indicated in the following scheme :—

Example :—III. Group. Centre of Density in May, 1906.

Mean No. of Miles from Dutch Coast.		Catch per hour.		Products.
10	×	54·0	=	540·0
18	×	26·6	=	478·8
27	×	15·2	=	410·4
42	×	16 4	=	688·8
50	×	1·8	=	90·0
61	×	1·7	=	103·7
73	×	1·0	=	73·0
83	×	4·2	=	348·6
		120·9		2,733·3

$$\frac{2,733·3}{120·9} = 24·2 \text{ miles from Dutch Coast.}$$

Below are given the approximate distances from the Dutch Coast of the *Centres of Density* of age groups II.–IV. and V.+ (taken collectively) in May and September, as calculated in the way that has just been described.

Groups.	——	II.	III.	IV.	V.+.
Mean Number of Miles from Dutch Coast.	May	15	24	35	46
	September ..	26	37	47	63
Differences ...	... ...	11	13	12	17

We see from these data :—

(1.) That the centre of density of the II.-group in September (26 miles) approximately equals the centre of density of the III.-group in May (24 miles).

(2.) That the centre of density of the III.-group in September (37 miles) approximately equals the centre of density of the IV.-group in May (35 miles).

(3.) That the centre of density of the IV.-group in September (47 miles) approximately equals the centre of density of the V.+-group in May (46 miles).

* By this is meant not the centre of density of the *whole* mass of each age group, but of that portion of each age group which is distributed between the two extremities of the section trawled over. A considerable portion of Group II. (especially) remains "inside" the 10-fathom line ; and of this portion no account can be taken owing to the lack of samples for comparison.

These results clearly point to a movement seawards of the mass of each age group to the extent of several miles in the interval between May and September, the II.-group taking the place of the III.-group, the III.-group that of the IV.-group, and the IV.-group that of the V.+-groups.

On referring again to Fig. 5 or Table 4, we see that the older fishes (V.+) were caught in considerably greater numbers per hour in May than in September on the Texel-Leman track. In May, the mean catch-per-hour for the series of hauls was 2·6; in September it was 1·2. This marked difference between the numbers of the V.+-groups caught on those two occasions would doubtless have been still greater if the otter trawl had been used in May as well as in September, so that we pretty safely conclude that the V.+-groups were actually more abundant in this region in May (1906) than in September (1905). The presence of these fishes (which from their age would practically all be mature)* in greater quantities and nearer the coast in May than in September is probably to be explained as the result of recent immigration from the southern deeper part of the Southern Bight of fishes which had spawned two or three months previously. That the principal spawning grounds for plaice are in this region has been clearly demonstrated;† as has also a spring migration of these fishes in a northerly direction‡ and partly towards the Dutch coast,§ *i.e.*, towards the Leman-Texel region.

Summary.—From the density-distribution of the age groups of Plaice in the region between the Texel and Leman Grounds in May and September, respectively, there is evidence of a seaward movement of the mass of each age group in the course of the intervening summer. These results confirm the indications of marking experiments and size distribution data.

IV.—Relation of Size to Age on Different Grounds.

1. *Notes on Tables* 5–10.

In *Table* 5 are recorded, for males and females separately, the average lengths (to the nearest tenth of a centimetre) of age-groups I.–V. in our various samples collected during the period 1904–09; the primary grouping of the records being according to the geographical relations of the fishing grounds, the secondary arrangement being in the order of the months (April to March).

In *Tables* 6 to 10 the records are grouped in months and whole centimetres (the *nearest* whole centimetre) and the averages are for the two sexes combined. These tables show at a glance the more prominent local variations apart from sexual differences (except in the case of the V. group), and averages based on only a few specimens (< 30) are omitted from these tables.

In *Tables* 6–8 I have incorporated the values given by Johansen‖ (marked J) for the average lengths of age groups I.–III. in September 1905 at the Vyl Light Vessel (Horn Reef) for the sake of comparison with my own determinations of the average lengths of the same groups off the Dutch and English coasts. Johansen's results, like mine, are based on otolith examination.

Since the spawning of plaice in the North Sea and English Channel occurs mainly during the months of January, February and March¶, a convenient arbitrary date to take

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* Wallace, 1909, p. 67, &c.

† Redeke, 1906 and 1909, pp. 53, 54, &c.; Boeke, 1906, p. 26, &c.; Lee, 1909, pp. 102–104; Wallace, 1909, pp. 57–58.

‡ Garstang, 1905, A., pp. 21–23 and Chart 2.

§ Redeke, 1909, p. 52.

‖ Johansen, 1906, p. 104.

¶ See Cunningham's "Marketable Marine Fishes" (London, 1896), pp. 215, &c.; also Publication de Circonstance du Conseil Permanent International pour l'Exploration de la Mer, No. 3, p. 72.

as the starting point of each age group or yearly period is April 1st, since this virtually covers the termination of the spawning period and by this time practically all the season's ova have been spawned and fertilised and the young fishes have started their development. April 1st is the starting point adopted in my reports of 1907, 1909 and the present one.

In the Western part of the English Channel the average spawning period is somewhat earlier than in the North Sea, the maximum, according to Kyle *, occurring between the third week in January and the second week in February ; whereas in the Central † and Northern ‡ parts of the North Sea the maximum appears to occur in the latter part of February and the first part of March. It follows that in any given month plaice of a given age group, defined as commencing on April 1st, will be slightly older in the Channel than in the North Sea ; but the allowance to be made for the slight difference of age in comparing the average length of the same age group in the same month in the two regions probably constitutes a very small proportion of the relatively considerable differences with which we have to deal. One has only to examine the otoliths of Channel and North Sea plaice and to compare the relative breadth of the periodic rings in the two cases to be convinced by "internal evidence" of the considerably greater yearly growth-increments in the *earlier* years in the one case than in the other (see Figs. 6 and 7) and that these are of themselves sufficient to account for the difference in the average length of the same age group in the two localities.

The rest of this section consists of notes on Tables 6 to 10 in which attention will be directed to facts illustrating the following *general conclusions :—*

1.—Judging from a comparison of the average length of plaice of the same age caught at different distances from the Danish (Horn Reef) and Dutch (Texel) coasts respectively, *plaice would appear to be smaller for their age off Horn Reef than at the same distance off Texel.*

The difference observed if proved to be constant (apart from yearly fluctuations) appears susceptible of two explanations, viz. :

(*a*) Migration off shore at a smaller size (irrespective of age) at Horn Reef than at Texel, owing to the pressure of the population which is denser than at Texel.§

(*b*) Slower average growth-rate at Horn Reef than at Texel, due to greater intensity of competition for food induced by greater density of population.

It may be said that the *latter* explanation is in harmony with the results of researches by Johansen indicating a relation between growth-rate and density of population at different places ‖ and in different years ¶ on the coast of Denmark.

2.—The average length of a plaice at a given age was found to be approximately uniform and constant throughout the *central* parts of the *Southern Bight*, from the Leman Ground in the North to near the straits of Dover in the South.

3.—On the South Dogger and Flamborough Off Grounds plaice of the fourth, fifth and sixth years (age Groups III.–V.) are (on an average) larger for their age than in the central parts of the Southern Bight, the average differences increasing with age (being least for the III. Group).

4.—Plaice of the second and third years of life (I. and II. Groups) in West Bay (English Channel) were found to be considerably larger (on an average) than plaice of (approximately) the same age anywhere off the coasts of Holland, England or Denmark.

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* See Kyle in report by Garstang, 1903, pp. 490–493.
† Wallace, 1909, p. 59.
‡ Fulton, 1892, p. 242.
§ Garstang, 1909, pp. 73–77, &c.
‖ Johansen, 1906, pp. 86 (foot) and 90–108 ; Johansen, 1907, p. 60, 7c.
¶ Johansen, 1908, p. 47. "In 1903 when an unusually rich stock of undersized plaice occurred in the Horn Reef area the growth-rate of marked plaice of 20–30 cm. was very slow (ca. 4cm.) In 1904, 1905, 1906, and 1907 when the stock of undersized plaice in the Horn Reef area was less, the growth of the marked plaice was far more rapid, viz., 6·0–7·5 cm. annually.

TABLE 5.—Average Length (cm.) of Age Groups I.–V. in samples from various localities (1903–1909).

Index figures give the numbers of fish on which the Averages are based.

Averages based on less than 20 fish in brackets.

Locality.	Sample Reference Nos.	Depth in fathoms.	Month and Year.	I.—Group.		II.—Group.		III.—Group.		IV.—Group.		V.—Group.	
				Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Bridlington Bay	4	3½–5	vii./05	—	—	$16 \cdot 2^{94}$		$18 \cdot 6^{74}$		$(22 \cdot 3^{12})$		—	—
,, ,,	31	5–6	ix./06	—	$(12 \cdot 9^{5})$	$16 \cdot 3^{96}$	$16 \cdot 3^{73}$	$19 \cdot 4^{57}$	$19 \cdot 6^{40}$	$(20 \cdot 5^{16})$	$(22 \cdot 2^{13})$	$(24 \cdot 5^{2})$	—
Wash	29	?	vi./06		$7 \cdot 3^{934}$		$11 \cdot 2^{632}$		$14 \cdot 9^{69}$		$(15 \cdot 9^{8})$	—	—
,, ...	5	1½–7	viii./05		$9 \cdot 6^{183}$		$14 \cdot 6^{86}$		$16 \cdot 6^{6}$	—	—	—	—
Mablethorpe ...	6	3½–9	viii./05		$12 \cdot 0^{68}$		$17 \cdot 1^{70}$		$20 \cdot 3^{7}$	—	—	—	—
Lowestoft ...	1	3–5	v./05		$7 \cdot 6^{96}$		$12 \cdot 4^{272}$		$15 \cdot 2^{75}$		$(20 \cdot 8^{3})$	—	—
Flamborough Off	34	24–25	vi./08	—	—	—	—	$(23 \cdot 5^{2})$	$(30 \cdot 5^{1})$	$(34 \cdot 0^{4})$	$(35\ 6^{11})$	$(35 \cdot 5^{3})$	$(38 \cdot 1^{11})$
,, ,,	35	24–28	viii./08	—	—	$(27 \cdot 5^{1})$	—	$(30 \cdot 3^{5})$	$(31 \cdot 3^{11})$	$31 \cdot 9^{37}$	$33 \cdot 4^{68}$	$(33 \cdot 7^{6})$	$37 \cdot 3^{25}$
,, ,,	17	25–30	x./05	—	—	$(21 \cdot 7^{8})$	$(28 \cdot 5^{2})$	$(28 \cdot 2^{19})$	$(30 \cdot 2^{18})$	$33 \cdot 3^{25}$	$36 \cdot 6^{62}$	$(36 \cdot 0^{19})$	$(41 \cdot 2^{19})$
,, ,,	33	26–37	x./06	—	—	$(20 \cdot 5^{1})$	$(24 \cdot 5^{1})$	$(25 \cdot 6^{9})$	$(31 \cdot 0^{8})$	$(32 \cdot 8^{17})$	$37 \cdot 0^{20}$	$(36 \cdot 7^{17})$	$40 \cdot 1^{25}$
,, ,,	18, 19	23–31	i./05	$(19 \cdot 5^{3})$	—	$(24 \cdot 1^{3})$	—	$(29 \cdot 7^{16})$	$(31 \cdot 0^{14})$	$34 \cdot 3^{37}$	$(35 \cdot 8^{7})$	$37 \cdot 8^{36}$	$(36 \cdot 3^{5})$
,, ,,	32	24–30	iii./06	$(13 \cdot 5^{1})$	—	$(21 \cdot 6^{10})$	$(26 \cdot 2^{6})$	$(29 \cdot 6^{13})$	$(29 \cdot 7^{8})$	$(36 \cdot 2^{18})$	$37 \cdot 5^{55}$	$(33 \cdot 7^{5})$	$(39 \cdot 1^{17})$
,, ,,	—	—	**x.–iii.**	—	—	—	—	**$28 \cdot 3^{57}$**	**$30 \cdot 5^{45}$**	**$34 \cdot 1^{97}$**	**$36 \cdot 9^{144}$**	**$37 \cdot 8^{77}$**	**$40 \cdot 1^{66}$**
Dogger, S. ...	14	10½–18	x./05	—	—	$(29 \cdot 0^{2})$	$(28 \cdot 5^{2})$	$(32 \cdot 0^{2})$	$(28 \cdot 0^{4})$	$(33 \cdot 1^{10})$	$(36 \cdot 2^{13})$	$(37 \cdot 8^{3})$	$(43 \cdot 8^{10})$
,, ...	36	10–15	x./06	—	—	$(29 \cdot 5^{1})$	—	$(41 \cdot 5^{1})$	$(37 \cdot 0^{2})$	—	$(40 \cdot 3^{15})$	$(44 \cdot 5^{1})$	$(43 \cdot 5^{3})$
,, ...	15	11½–17	i./05	—	—	—	—	$(29 \cdot 5^{8})$	$(29 \cdot 6^{14})$	$(32 \cdot 6^{8})$	$35 \cdot 3^{23}$	—	$(45 \cdot 0^{2})$
,, ...	16	9–17	iii./04	—	—	—	$(23 \cdot 0^{2})$	$(30 \cdot 1^{12})$	$30 \cdot 4^{50}$	$(35 \cdot 3^{17})$	$36 \cdot 9^{33}$	$(38 \cdot 0^{2})$	$41 \cdot 9^{24}$
,, ...	—	—	**x.–xii.**	—	—	—	—	**$30 \cdot 5^{23}$**	**$30 \cdot 3^{70}$**	**$34 \cdot 0^{35}$**	**$36 \cdot 1^{74}$**	—	**$42 \cdot 6^{39}$**
Clay Deep ...	13	20–24	x./05	—	—	—	—	$(27 \cdot 3^{7})$	$(28 \cdot 9^{10})$	$31 \cdot 6^{32}$	$32 \cdot 7^{54}$	$(35 \cdot 6^{8})$	$(40 \cdot 1^{10})$
Horn Reef Outer	37	21–25	ix./06	—	—	$(23 \cdot 5^{1})$	$(24 \cdot 8^{3})$	$25 \cdot 9^{59}$	$26 \cdot 7^{52}$	$(29 \cdot 4^{17})$	$(30 \cdot 6^{9})$	—	$(35 \cdot 6^{11})$
Leman Region ...	40	13–17	v./06	—	$(11 \cdot 5^{1})$	$16 \cdot 8^{88}$	$17 \cdot 3^{89}$	$22 \cdot 3^{122}$	$23 \cdot 8^{131}$	$27 \cdot 6^{99}$	$29 \cdot 0^{81}$	$30 \cdot 7^{32}$	$33 \cdot 2^{28}$
,, ,, ...	43	15–18	vi./08	—	—	$18 \cdot 5^{92}$	$18 \cdot 2^{62}$	$23 \cdot 4^{113}$	$25 \cdot 1^{67}$	$28 \cdot 1^{100}$	$29 \cdot 6^{80}$	$(31 \cdot 3^{19})$	$34 \cdot 3^{21}$
,, ,, ...	44	15–17	viii./08	—	—	$21 \cdot 8^{162}$	$22 \cdot 4^{132}$	$25 \cdot 2^{216}$	$26 \cdot 2^{168}$	$27 \cdot 7^{109}$	$29 \cdot 1^{75}$	$(31 \cdot 5^{18})$	$(33 \cdot 7^{8})$
,, ,, ...	9	15½–17	ix./05	$(16 \cdot 7^{14})$	$15 \cdot 9^{20}$	$23 \cdot 2^{34}$	$24 \cdot 5^{31}$	$26 \cdot 8^{61}$	$26 \cdot 6^{58}$	$30 \cdot 9^{44}$	$32 \cdot 4^{38}$	$35 \cdot 2^{4}$	$(39 \cdot 2^{7})$
,, ,, ...	21	12–17	x./05	$(19 \cdot 4^{5})$	$(20 \cdot 0^{10})$	$24 \cdot 9^{32}$	$25 \cdot 3^{33}$	$28 \cdot 4^{25}$	$30 \cdot 3^{25}$	$31 \cdot 7^{21}$	$33 \cdot 9^{43}$	$(36 \cdot 2^{7})$	$(37 \cdot 8^{10})$
,, ,, ...	20	17½–20	i./05	—	$(16 \cdot 5^{1})$	$(26 \cdot 5^{2})$	$(27 \cdot 0^{2})$	$(27 \cdot 9^{2})$	$28 \cdot 7^{26}$	$(33 \cdot 8^{3})$	$(32 \cdot 7^{7})$	—	$(43 \cdot 8^{3})$
,, ,, ...	39	14–25	iii./06	$(16 \cdot 7^{16})$	$(17 \cdot 5^{16})$	$23 \cdot 1^{57}$	$24 \cdot 2^{42}$	$27 \cdot 1^{41}$	$26 \cdot 3^{39}$	$(29 \cdot 8^{15})$	$(32 \cdot 8^{18})$	$(34 \cdot 1^{5})$	$(38 \cdot 4^{9})$
,, ,, ...	—	—	**x.–iii.**	—	—	**$23 \cdot 6^{91}$**	**$24 \cdot 8^{77}$**	**$27 \cdot 6^{78}$**	**$28 \cdot 1^{90}$**	**$31 \cdot 1^{39}$**	**$33 \cdot 2^{68}$**	—	—
Brown Bank Ground.	41	15½–17	v./06	—	—	$16 \cdot 8^{67}$	$16 \cdot 4^{43}$	$24 \cdot 7^{93}$	$24 \cdot 2^{78}$	$27 \cdot 4^{58}$	$29 \cdot 4^{57}$	$31 \cdot 2^{26}$	$33 \cdot 0^{34}$
,, ,,	10	14–16½	ix./05	$(18 \cdot 5^{5})$	$(19 \cdot 2^{4})$	$21 \cdot 6^{96}$	$22 \cdot 8^{112}$	$26 \cdot 1^{115}$	$26 \cdot 5^{113}$	$29 \cdot 1^{50}$	$30 \cdot 6^{57}$	$(32 \cdot 2^{4})$	$(34 \cdot 1^{3})$
Texel Ground ... (Off Haaks Light Vessel.)	42	12–15½	v./06	$11 \cdot 1^{50}$	$11 \cdot 5^{29}$	$14 \cdot 0^{637}$	$14 \cdot 4^{522}$	$20 \cdot 2^{208}$	$20 \cdot 9^{192}$	$(24\ 4^{17})$	$26 \cdot 8^{26}$	—	$(29 \cdot 7^{4})$
,, ,,	$11^{1,2}$	12–14	ix./05	$(18 \cdot 2^{6})$	$(18 \cdot 0^{4})$	$20 \cdot 2^{206}$	$21 \cdot 0^{197}$	$24 \cdot 1^{86}$	$25 \cdot 0^{84}$	$28 \cdot 0^{23}$	$(29\ 2^{14})$	—	—
Off Petten ...	11^{3}	8–12	ix./05	$(15 \cdot 4^{15})$	$(15 \cdot 5^{13})$	$17 \cdot 3^{67}$	$18 \cdot 3^{68}$	$(21 \cdot 9^{5})$	$(23 \cdot 3^{14})$	$(25 \cdot 0^{2})$	$(30 \cdot 2^{3})$	—	—
,, ...	11^{4}	7–12	ix./05	$13 \cdot 9^{67}$	$14 \cdot 1^{50}$	$17 \cdot 0^{53}$	$18 \cdot 3^{64}$	$(18 \cdot 5^{6})$	$(23 \cdot 6^{13})$	$(23 \cdot 8^{3})$	$(25 \cdot 5^{1})$	—	—
N. of Brown Ridges.	22	14–17	xi./03	—	—	$(23 \cdot 9^{15})$		$(27 \cdot 9^{16})$		$31 \cdot 7^{5}$		—	—
Off Ymuiden and Egmond.	23–25	8–11	xi.–xii./03.	$14 \cdot 2^{111}$		$18 \cdot 3^{244}$		$(26 \cdot 1^{9})$		—	—	—	—
Brielle Ground ...	46	12–15	v./06	$(12 \cdot 3^{10})$	$(13 \cdot 5^{9})$	$16 \cdot 3^{331}$	$17 \cdot 7^{242}$	$21 \cdot 3^{166}$	$22 \cdot 1^{190}$	$26 \cdot 7^{33}$	$27 \cdot 1^{30}$	$(29 \cdot 3^{7})$	$(28 \cdot 5^{7})$
S. of Brown Ridges	47	15–19	v./06	$(14 \cdot 5^{1})$	—	$(17 \cdot 9^{17})$	$(17 \cdot 9^{8})$	$22 \cdot 9^{25}$	$(25\ 5^{15})$	$(28 \cdot 4^{14})$	$(30 \cdot 4^{8})$	$(26 \cdot 5^{2})$	$(29 \cdot 8^{3})$
Eastern Deep Water.	48	19–23	v./06	—	—	$(18 \cdot 6^{10})$	$(20 \cdot 5^{7})$	$24 \cdot 1^{34}$	$(26 \cdot 9^{17})$	$28 \cdot 4^{38}$	$30 \cdot 8^{28}$	$31 \cdot 6^{42}$	$33 \cdot 7^{28}$
,, ,,	45	18½–23	iii./06	$(17 \cdot 3^{7})$	$(18 \cdot 5^{1})$	$20 \cdot 9^{24}$	$(24 \cdot 9^{19})$	$27 \cdot 7^{22}$	$(27 \cdot 6^{9})$	$31 \cdot 3^{23}$	$(31 \cdot 5^{4})$	$(35 \cdot 5^{2})$	$(38 \cdot 5^{1})$
Gabbard Deep Water.	51	23–25	i./08	$17 \cdot 8^{97}$	$(18 \cdot 7^{13})$	$21 \cdot 2^{240}$	$24 \cdot 2^{38}$	$24 \cdot 8^{376}$	$26 \cdot 2^{127}$	$29 \cdot 8^{91}$	$(32 \cdot 1^{14})$	$33 \cdot 3^{42}$	$(39 \cdot 9^{9})$
Schouwen Ground.	52	15–17	iv./08	$(13 \cdot 5^{1})$	$(13 \cdot 5^{2})$	$16 \cdot 7^{97}$	$17 \cdot 5^{72}$	$21 \cdot 2^{20}$	$20 \cdot 9^{25}$	$(22 \cdot 8^{19})$	$(25 \cdot 1^{7})$	$(29 \cdot 5^{2})$	$(27 \cdot 1^{3})$
,, ,,	50	15–17	xii./07	$(19 \cdot 1^{5})$	$(20 \cdot 2^{4})$	$22 \cdot 3^{68}$	$22 \cdot 4^{70}$	$24 \cdot 0^{147}$	$24 \cdot 8^{79}$	$26 \cdot 9^{21}$	$(27 \cdot 5^{3})$	—	—
Off Sandettie Bank.	26	19–21	xi./04	$(21 \cdot 5^{4})$	—	$(25 \cdot 1^{15})$	—	$28 \cdot 5^{39}$	$(32 \cdot 1^{5})$	$32 \cdot 0^{54}$	$(36 \cdot 5^{9})$	$34 \cdot 3^{12}$	$(36 \cdot 5^{1})$
West Bay, Off Shore.	28	17–23	ii./04	$(19 \cdot 2^{14})$	$(18 \cdot 5^{8})$	$(25 \cdot 1^{17})$	$26 \cdot 7^{28}$	$(30 \cdot 0^{6})$	$(32 \cdot 0^{12})$	$(34 \cdot 5^{2})$	—	—	—
,, ,,	53	20–29	ii./06	$(23 \cdot 0^{15})$	$(26 \cdot 5^{4})$	$26 \cdot 5^{26}$	$(30 \cdot 7^{17})$	$(31 \cdot 4^{14})$	$(32 \cdot 3^{13})$	$(34 \cdot 0^{4})$	$(36 \cdot 4^{10})$	—	$(43 \cdot 5^{1})$
,, ,,	54	19–30	ii.–iii./07	$(20 \cdot 1^{8})$	$(25 \cdot 2^{7})$	$24 \cdot 0^{21}$	$26 \cdot 6^{27}$	$(29 \cdot 1^{14})$	$29 \cdot 6^{32}$	$(32 \cdot 9^{5})$	$(33 \cdot 2^{8})$	$(36 \cdot 5^{1})$	$(38 \cdot 5^{1})$
Teignmouth Bay	27	4½–7	xi./04	$(22 \cdot 2^{3})$	$(23 \cdot 0^{2})$	$(27 \cdot 3^{8})$	$(28 \cdot 0^{13})$	$(32 \cdot 0^{4})$	$(33 \cdot 1^{14})$	$(33 \cdot 0^{2})$	$(33 \cdot 2^{3})$	—	—
,, ,,	55	3–6	xi./07	$19 \cdot 4^{61}$	$19 \cdot 2^{65}$	$(28 \cdot 5^{18})$	$28 \cdot 9^{24}$	$(31 \cdot 3^{11})$	$(34 \cdot 2^{11})$	$(29 \cdot 5^{1})$	$(36 \cdot 1^{3})$	—	$(41 \cdot 5^{4})$
,, ,,	56	3¼–5	xi./08	$(22 \cdot 2^{16})$	$(22 \cdot 9^{13})$	$27 \cdot 6^{207}$	$28 \cdot 6^{140}$	$31 \cdot 8^{20}$	$(33 \cdot 6^{8})$	$(32 \cdot 5^{12})$	$(36 \cdot 4^{15})$	$(35 \cdot 8^{3})$	$(34 \cdot 5^{4})$
,, ,,	—	—	xi./04, 07, 08	**$20 \cdot 1^{80}$**	**$20 \cdot 9^{80}$**	**$27 \cdot 6^{243}$**	**$28 \cdot 6^{177}$**	**$31 \cdot 7^{35}$**	**$33 \cdot 6^{33}$**	**$(32 \cdot 4^{15})$**	**$(35 \cdot 8^{21})$**	—	—
Tor Bay	57	3–7	viii./09	$18 \cdot 3^{263}$	$18 \cdot 3^{186}$	$(27 \cdot 0^{16})$	$27 \cdot 1^{20}$	$(29 \cdot 3^{6})$	$(36 \cdot 7^{6})$	$(30 \cdot 5^{1})$	$(38 \cdot 5^{4})$	$(39 \cdot 5^{1})$	$(44 \cdot 5^{4})$
Start Bay ...	58	7–13	viii./09	$18 \cdot 6^{34}$	$19 \cdot 2^{28}$	$28 \cdot 6^{21}$	$(28 \cdot 9^{11})$	$(32 \cdot 3^{11})$	$32 \cdot 8^{26}$	$(34 \cdot 1^{5})$	$(37 \cdot 1^{13})$	$(34 \cdot 5^{3})$	$(40 \cdot 7^{11})$
,,	57, 58	—	viii./09	**$18 \cdot 3^{297}$**	**$18 \cdot 4^{214}$**	**$27 \cdot 8^{37}$**	**$27 \cdot 7^{31}$**	**$(31 \cdot 3^{17})$**	**$33 \cdot 5^{32}$**	**$(33 \cdot 5^{6})$**	**$(37 \cdot 4^{17})$**	—	**$(41 \cdot 3^{13})$**

TABLE 6.—Average Length of I. Group on various Grounds in different Months.

cm.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	cm.
22	—	—	—	—	—	—	—	—	—	—	West Bay (Offshore) (1904, 1906, 1907).	—	22
21	—	—	—	—	—	—	—	—	—	—	—	—	21
20	—	—	—	—	—	—	—	Teignmouth (1904, 1907, 1908).	—	—	—	—	20
19	—	—	—	—	—	—	—	—	—	—	—	—	19
18	—	—	—	—	Tor Bay, 1909. Start Bay, 1909.	—	—	—	—	Gabbard L.V., 1908.	—	—	18
17	—	—	—	—	—	—	—	—	—	—	—	Leman, 1906.	17
16	—	—	—	—	—	Leman, 1905.	—	—	—	—	—	—	16
15	—	—	—	—	—	—	—	—	—	—	—	—	15
14	—	—	—	—	—	Off Petten, 1905.	—	Ymuiden, 1903.	—	—	—	—	14
13	—	—	—	—	—	Horn Reef, off Vyl L.V., 1905 (J).	—	—	—	—	—	—	13
12	—	—	—	—	Mablethorpe, 1905.	—	—	—	—	—	—	—	12
11	—	Off Haak's (Texel) L.V., 1906.	—	—	—	—	—	—	—	—	—	—	11
10	—	—	—	—	Wash, 1905.	—	—	—	—	—	—	—	10
9	—	—	—	—	—	—	—	—	—	—	—	—	9
8	—	Lowestoft, 1904.	—	—	—	—	—	—	—	—	—	—	8
7	—	—	Wash, 1906.	—	—	—	—	—	—	—	—	—	7
6	—	—	—	—	—	—	—	—	—	—	—	—	6

TABLE 7.—Average Length of II. Group on various Grounds in different Months.

28	—	—	—	—	Tor Bay, 1909. Start Bay, 1909.	—	—	Teignmouth (1904, 1907, 1908).	—	—	—	—	28
27	—	—	—	—	—	—	—	—	—	—	—	—	27
26	—	—	—	—	—	—	—	—	—	—	West Bay (Offshore) (1904, 1906, 1907).	—	26
25	—	—	—	—	—	—	Leman, 1905.	—	—	—	—	—	25
24	—	—	—	—	—	Leman, 1905.	—	—	—	—	—	—	24
23	—	—	—	—	—	—	—	—	—	—	—	Leman, 1906.	23
22	—	—	—	—	Leman, 1908.	Brown Bank, 1905.	—	—	Schouwen, 1907.	—	—	Eastern Edge of Southern Deep Water, 1906.	22

21	—	—	—	—	—	Off Haak's (Texel) L.V., 1905.	—	—	—	Gabbard L.V. 1908.	—	—	21
20	—	—	—	—	—	—	—	—	—	—	—	—	20
19	—	Eastern Edge of Southern Deep Water, 1906.	—	—	—	—	—	—	—	—	—	—	19
18	—	South of Brown Ridges, 1906.	Leman, 1908.	—	—	Off Petten, 1905. Horn Reef, off Vyl L.V., 1905 (J).	—	—	—	—	—	—	18
17	Schouwen, 1908.	Leman, 1906. Brown Bank, 1906. Brielle, 1906.	—	—	Mablethorpe, 1905.	—	—	—	—	—	—	—	17
16	—	—	—	Bridlington, 1905.	—	Bridlington, 1906.	—	—	—	—	—	—	16
15	—	—	—	—	Wash, 1905.	—	—	—	—	—	—	—	15
14	—	Off Haak's (Texel) L.V. 1906.	—	—	—	—	—	—	—	—	—	—	14
13	—	—	—	—	—	—	—	—	—	—	—	—	13
12	—	Lowestoft, 1904.	—	—	—	—	—	—	—	—	—	—	12
11	—	—	—	—	—	—	—	—	—	—	—	—	11

TABLE 8.—Average Length of III. Group on various Grounds in different Months.

33	—	—	—	—	Tor Bay, 1909, Start Bay, 1909.	—	—	—	—	—	—	—	33
32	—	—	—	—	—	—	—	Teignmouth, (1904, 1907, 1908).	—	—	—	—	32
31	—	—	—	—	—	—	—	—	—	—	—	—	31
30	—	—	—	—	—	—	—	—	—	Dogger, 1905 Flamborough, 1905.	West Bay (Offshore) (1904, 1906, 1907).	Dogger, 1904 ... Flamborough, 1906.	30
29	—	—	—	—	—	—	Flamborough, 1905. Leman, 1905.	Sandettie, 1904.	—	—	—	—	29
28	—	—	—	—	—	—	—	—	—	S. Botney, 1905.	—	Eastern edge of Southern Deep Water, 1906.	28
27	—	—	—	—	—	Leman, 1905 ...	—	—	—	—	—	Leman, 1906 ...	27
26	—	—	—	—	Leman, 1908 ...	Brown Bank, 1905. Horn Reef Outer, 1906.	—	—	—	—	—	—	26

TABLE 8.—Average Length of III. Group on various Grounds in different Months—*continued*.

cm.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	cm.
25	—	Eastern edge of Southern Deep Water, 1906.	—	—	—	Off Haak's (Texel) L.V., 1905.	—	—	—	—	—	—	25
24	—	South of Brown Ridges, 1906. Brown Bank, 1906.	Leman, 1908...	—	—	Horn Reef, off Vyl L.V., 1905 (J).	—	—	Schouwen, 1907.	—	—	—	24
23	—	Leman, 1906 ...	—	—	—	—	—	—	—	—	—	—	23
22	—	Brielle, 1906 ...	—	—	—	Off Petten, 1905	—	—	—	—	—	—	22
21	Schouwen, 1908.	—	—	—	—	—	—	—	—	—	—	—	21
20	—	Off Haak's (Texel) L.V., 1906.	—	—	Mablethorpe, 1905.	—	—	—	—	—	—	—	20
19	—	—	—	Bridlington, 1905.	—	Bridlington, 1906.	—	—	—	—	—	—	19
18	—	—	—	—	—	—	—	—	—	—	—	—	18
17	—	—	—	—	—	—	—	—	—	—	—	—	17
16	—	—	—	—	—	—	—	—	—	—	—	—	16
15	—	Lowestoft, 1904	Wash, 1906 ...	—	—	—	—	—	—	—	—	—	15
14	—	—	—	—	—	—	—	—	—	—	—	—	14

TABLE 9.—Average Length of IV. Group on various Grounds in different Months.

37	—	—	—	—	—	—	—	—	—	—	—	Flamborough, 1906.	37
36	—	—	—	—	—	—	Flamborough, 1905.	—	—	—	—	Dogger, 1904.	36
35	—	—	—	—	—	—	Dogger, 1905. Flamborough, 1906.	—	—	—	—	—	35
34	—	—	—	—	—	—	—	Teignmouth (1904. 1907, 1908)	—	Dogger, 1905. Flamborough, 1905.	West Bay (off-shore) (1904, 1906, 1907).	—	34
33	—	—	—	—	Flamborough, 1908.	—	Leman, 1905.	Sandettie, 1904.	—	—	—	—	33
32	—	—	—	—	—	Leman, 1905.	Clay Deep, edge of Dogger, 1905.	—	—	—	—	—	32
31	—	—	—	—	—	—	—	—	—	—	—	Leman, 1906. Eastern edge, of Southern Deep Water, 1906.	31

30	—	—	—	—	—	Brown Bank, 1905. Horn Reef, Outer, 1906.	—	—	—	Gabbard, 1908.	—	—	30
29	—	Eastern edge of Southern Deep Water, 1906. South of Brown Ridges, 1906.	Leman, 1908.	—	—	—	—	—	—	—	—	—	29
28	—	Leman, 1906. Brown Bank, 1906.	—	—	Leman, 1908.	Off Haak's (Texel) Light Vessel, 1905.	—	—	—	—	—	—	28
27	—	Brielle, 1906.	—	—	—	—	—	—	Schouwen, 1907.	—	—	—	27
26	—	Off Haak's (Texel) Light Vessel, 1906.	—	—	—	—	—	—	—	—	—	—	26
25	—	—	—	—	—	—	—	—	—	—	—	—	25
24	—	—	—	—	—	—	—	—	—	—	—	—	24
23	Schouwen, 1908.	—	—	—	—	—	—	—	—	—	—	—	23
22	—	—	—	—	—	—	—	—	—	—	—	—	22
21	—	—	—	—	—	Bridlington, 1906.	—	—	—	—	—	—	21

TABLE 10.—Average Length of V. Group (Males only) on various Grounds in different Months.

42	—	—	—	—	—	—	—	—	—	—	—	—	42
41	—	—	—	—	—	—	—	—	—	—	—	—	41
40	—	—	—	—	—	—	—	—	—	—	—	—	40
39	—	—	—	—	—	—	—	—	—	—	—	—	39
38	—	—	—	—	—	—	—	—	—	Flamborough, 1905.	—	—	38
37	—	—	—	—	—	—	Flamborough, 1906.	—	—	—	—	—	37
36	—	—	—	—	—	—	Flamborough, 1905.	—	—	—	—	—	36
35	—	—	—	—	—	—	—	—	—	—	—	—	35
34	—	—	—	—	—	—	—	—	—	—	—	—	34
33	—	—	—	—	—	—	—	—	—	Gabbard L.V., 1908.	—	—	33
32	—	Eastern Edge of Southern Deep Water, 1906.	—	—	—	—	—	—	—	—	—	—	32
31	—	Leman, 1906. Brown Bank, 1906.	Leman, 1908.	—	Leman, 1908.	—	—	—	—	—	—	—	31
30	—	—	—	—	—	—	—	—	—	—	—	—	30
29	—	—	—	—	—	—	—	—	—	—	—	—	29
28	—	—	—	—	—	—	—	—	—	—	—	—	28
27	—	—	—	—	—	—	—	—	—	—	—	—	27

Notes on Table 6.

I. Group—Second Year of Life.

1.—Comparing the records of average length for the month of August we see the second-year plaice averaged about 6 centimetres larger in the South Devon Bays* (< 10 fathoms) than off the Lincolnshire coast (Mablethorpe), although the depth of water and distance from shore were much the same for the two localities. In the Wash in the same month the average length of this group was 8 centimetres less than in the Devon Bays.

2.—Our records for November show that the average length of the I. Group was 6 centimetres higher in Teignmouth Bay (< 10 fathoms) than off Ymuiden (< 10 fathoms) on the Dutch Coast.

3.—In winter (January to March) the age group we are considering averaged 4 to 5 centimetres larger on the offshore grounds of West Bay (17–30 fathoms) than in the central parts of the Southern Bight of the North Sea (Gabbard, Leman).

4.—The average length of the group in winter (*i.e.* when practically two years old) was approximately the same on the Leman Ground, in the Northern part, as off the Gabbard Light Vessel in the Southern part of the Central region of the Southern Bight, viz., 17–18 cm.

5.—In September, 1905, at Vyl Light Vessel, about twenty miles from the Danish coast, the average length of the I. group was found to be about 1 centimetre lower than at a distance of about five miles from the Dutch coast (off Petten).

Notes on Table 7.

II. Group—Third Year of Life.

1.—The average length of this group in May (*i.e.* when just over two years old) in the central parts of the Southern Bight (Leman, Brown Bank and Ridges, Eastern Deep Water) was 17–19 cm. This is practically identical with the average length of the I. Group in winter (*i.e.* when just under two years old) on the Leman Ground and at the Gabbard Light Vessel (*see* Table 6).

2.—In our samples taken in August, plaice of the third year averaged 6 centimetres longer in the Devon Bays (< 10 fathoms) than on the Leman Ground and as much as 11 centimetres longer than at Mablethorpe (< 10 fathoms).

3.—In winter the average size of this group on the offshore grounds (17–30 fathoms) of West Bay was found to be 3–5 centimetres higher than in the central part of the Southern Bight.

4.—In autumn–winter the average length of the II. Group (practically three years old) in the central region of the Southern Bight (Leman, Sandettie, Gabbard, Eastern Deep Water) ranged from 21–25 centimetres.

5.—In September, 1905, the II. Group averaged about the same length at Vyl Light Vessel, some twenty miles from the Danish coast, as at a distance of about five miles from the Dutch coast (off Petten).

Notes on Table 8.

III. Group—Fourth Year of Life.

1.—The average length of this group in May (*i.e.* when just over three years of age) in the central part of the Southern Bight, we found to be 23–25 cm. This agrees very well with the average length of the II. Group in winter (*i.e.* when just under three years old) in the same region (*see* Table 7).

2.—In autumn–winter the average length of this group (when practically four years old) was 27–29 cm. in our samples from the central region of the Southern Bight.

3.—On the South Dogger and Flamborough Off Grounds the average length of the III. Group in winter was slightly higher (viz., 30 cm.) than in the central parts of the Southern Bight.

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* Tor Bay and Start Bay.

4.—The November records for Teignmouth Bay (< 10 fathoms) and near Sandettie Light Vessel, at the Southern extremity of the North Sea, show a difference of 3 centimetres in the average length of the III. Group, to the advantage of Teignmouth (South Devon).

5.—On the offshore grounds of West Bay the average length of this group in winter was found to be approximately the same as on the South Dogger and Flamborough Off Grounds, viz., 30 cm.

6.—In September, 1905, at Vyl Light Vessel, about 20 miles from the Danish coast, the III. Group averaged about 1 centimetre smaller than at an average distance of about fifteen miles from the Dutch coast (*i.e.* "Inside" Haaks (Texel) Light Vessel).

7.—In September the average size of this group was the same on the Horn Reef Outer Ground (in 1906), at a distance of sixty-five miles from the Danish coast, as on the Brown Bank Ground (in 1905), at an average distance of about forty-five miles from the Dutch coast.

Notes on Table 9.

IV. Group—Fifth Year of Life.

1.—In the central part of the Southern Bight (Leman, Brown Bank, Brown Ridges, Eastern Deep Water) the average length of this group in May (*i.e.* when just over four years of age), we found to be 28–29 cm; practically identical, therefore, with the average length of the III. Group in winter in the same region (*see* Table 8) March: Leman and Eastern Deep Water).

2.—In autumn-winter the average length of this group (now nearly four years old) in our samples from the central parts of the Southern Bight was 30–33 cm. On the South Dogger and Flamborough Off Grounds it was 34–37 cm.

3.—On the offshore grounds of West Bay (17–30 fathoms) in February the average length of the group was approximately the same as on the South Dogger and Flamborough Off Grounds in January and about 2 centimetres lower than on these same grounds in March (different years compared).

4.—In September the IV. Group averaged about the same size on the Horn Reef Outer Ground (in 1906) at a distance of about sixty-five miles off the Danish coast as on the Brown Bank Ground (in 1905) at an average distance of about forty-five miles from the Dutch coast.

5.—In October, 1905, the average length of this group was the same on the Leman Ground, eighty to ninety miles from the Dutch coast, as on the Clay Deep edge of the Dogger, about one hundred and fifty miles from the Danish coast.

Notes on Table 10.

V. Group (Males)—Sixth Year of Life.

1.—31–32 cm. was the average length of this group in May (*i.e.* when just over five years of age) in our samples from the central parts of the Southern Bight. This agrees very well with the average length of the IV. Group in winter, which was (for males only) 30 cm. on the Leman in March, the same at the Gabbard in January, and 31 cm. in the Eastern Deep Water in March (*see* Table 5).

2.—That male plaice of the sixth year grow very slowly in the Leman region is indicated by the fact that this group had the same average size in May, June, and August, according to our samples, viz., 31 cm.

3.—Another centimetre allowed for growth by the month of October gives 32 cm. as the probable average length of this group (males) on the Leman, as compared with 36–37 cm. on the Flamborough Off Ground. Again, in our records for January, we find 38 cm. as the average length of this group on the Flamborough Off Ground as against 33 cm. at the Gabbard Light Vessel. We may say then that plaice of the sixth year appear to average 4–5 centimetres larger on the Flamborough Off Ground than in the central parts of the Southern Bight.

TABLE 11.—Principal Age Groups in the region between the **Texel and the Leman Banks** in September, 1905. Depth 7–17 fathoms.

Sample No. 12.

—	Males.				Females.				
Age Groups.	I.	II.	III.	IV.	I.	II.	III.	IV.	
Approximate Age : Years, Months.	1, 6.	2, 6.	3, 6.	4, 6.	1, 6.	2, 6.	3, 6.	4, 6.	
Length in cm.									Length in cm.
11	1	—	—	—	3	—	—	—	11
12	18	—	—	—	11	—	—	—	12
13	24	1	—	—	13	—	—	—	13
14	20	11	2	—	24	9	1	—	14
15	22	18	—	—	13	15	1	—	15
16	9	27	—	—	13	29	—	—	16
17	6	37	2	—	6	27	—	—	17
18	8	63	—	—	3	46	2	—	18
19	—	74	6	—	2	64	3	—	19
20	3	77	11	—	2	59	8	—	20
21	—	46	19	2	1	60	19	—	21
22	—	38	22	1	—	48	16	1	22
23	—	32	21	1	—	42	16	—	23
24	—	16	33	4	—	28	38	1	24
25	—	11	40	5	—	22	37	7	25
26	—	5	41	8	—	10	39	3	26
27	—	1	30	13	—	8	33	9	27
28	—	—	18	21	—	2	27	7	28
29	—	—	13	18	—	3	17	15	29
30	—	—	6	14	—	—	12	22	30
31	—	—	10	15	—	—	7	9	31
32	—	—	1	10	—	—	2	13	32
33	—	—	1	4	—	—	—	7	33
34	—	—	—	4	—	—	1	6	34
35	—	—	—	2	—	—	—	4	35
36	—	—	—	—	—	—	—	4	36
37	—	—	—	—	—	—	—	1	37
38	—	—	—	—	—	—	—	2	38
39	—	—	—	—	—	—	—	1	39
40	—	—	—	—	—	—	—	—	40
41	—	—	—	—	—	—	—	1	41
Totals ...	111	457	276	122	91	472	279	113	
Range of fifty per cent. (cm.)	13–15	18–21	23–27	27–31	13–16	18–22	24–27	29–32	
Average Length (cm.) ...	14·4	19·5	24·9	28·8	14·6	20·4	25·3	30·4	
Amended Average (cm.)...	14·9	20·0	25·4	29·3	15·1	20·9	25·8	30·9	
Probable Error of Average (cm.)	0·13	0·08	0·18	0·17	0·15	0·09	0·12	0·21	

TABLE 12.—Principal Age Groups in the region between the **Texel and the Leman Banks** in May, 1906. Depth 13–17 fathoms.

Sample Nos. 40–42 combined.

—	Males.				Females.				—
Age Groups.	II.	III.	IV.	V.	II.	III.	IV.	V.	—
Approximate Age: Years, months.	2, 2.	3, 2.	4, 2.	5, 2.	2, 2.	3, 2.	4, 2.	5, 2.	
Length in cm.									Length in cm.
9	5	—	—	—	4	—	—	—	9
10	28	—	—	—	14	—	—	—	10
11	92	—	—	—	61	—	—	—	11
12	113	3	—	—	79	2	—	—	12
13	128	—	—	—	116	1	—	—	13
14	115	3	—	—	118	1	—	—	14
15	116	12	—	—	78	10	—	—	15
16	58	11	—	—	58	18	—	—	16
17	54	30	—	—	36	18	1	—	17
18	33	42	1	—	26	18	—	—	18
19	18	44	1	—	24	41	—	—	19
20	12	60	2	—	14	40	1	1	20
21	10	46	11	—	11	26	3	—	21
22	6	51	5	2	5	52	5	—	22
23	1	36	11	—	4	32	2	1	23
24	3	31	19	2	2	45	9	—	24
25	—	20	12	4	3	36	12	1	25
26	—	18	17	2	1	14	14	1	26
27	—	5	21	3	—	14	18	3	27
28	—	3	16	3	—	12	21	3	28
29	—	4	16	4	—	5	17	8	29
30	—	2	14	4	—	11	17	3	30
31	—	2	14	11	—	5	15	2	31
32	—	—	10	7	—	—	9	6	32
33	—	—	3	7	—	—	9	8	33
34	—	—	1	1	—	—	5	8	34
35	—	—	—	4	—	—	5	5	35
36	—	—	—	1	—	—	1	6	36
37	—	—	—	1	—	—	—	6	37
38	—	—	—	2	—	—	—	3	38
42	—	—	—	—	—	—	—	1	42
Totals ...	792	423	174	58	654	401	164	66	
Range of fifty per cent. (cm.)	12–15	19–23	24–29	28–33	13–16	19–24	26–31	29–35	
Average Length (cm.) ...	14·1	20·8	26·7	30·4	14·4	22·0	28·3	32·4	
Amended Average (cm.)...	14·6	21·3	27·3	30·9	14·9	22·5	28·8	32·9	
Probable Error of Average (cm.).	0·06	0·10	0·17	0·33	0·07	0·06	0·18	0·33	

TABLE 13.—Principal Age Groups between **Scheveningen and Southern Deep Water** in May, 1906. Depth 12–23 fathoms.

Sample Nos. 46–48 combined.

—	Males.				Females.				—
Age Groups.	II.	III.	IV.	V.	II.	III.	IV.	V.	
Approximate Age : Years, months.	2, 2.	3, 2.	4, 2.	5, 2.	2, 2.	3, 2.	4, 2.	5, 2.	
Length in cm.									Length in cm.
9	—	—	—	—	1	—	—	—	9
10	3	—	—	—	1	—	—	—	10
11	8	—	—	—	5	—	—	—	11
12	18	—	—	—	11	—	—	—	12
13	36	—	—	—	18	1	—	—	13
14	42	—	—	—	23	2	—	—	14
15	53	1	—	—	28	1	—	—	15
16	41	9	—	—	22	4	—	—	16
17	45	9	—	—	25	9	—	—	17
18	42	21	—	—	33	13	—	—	18
19	35	24	—	—	22	17	—	—	19
20	20	25	3	—	19	28	—	—	20
21	9	31	—	—	20	25	—	—	21
22	5	29	4	—	16	25	1	—	22
23	—	20	2	—	4	22	3	1	23
24	—	19	8	1	7	20	3	—	24
25	—	16	10	1	2	14	7	1	25
26	—	8	12	2	—	17	7	1	26
27	—	6	11	2	—	7	8	—	27
28	—	4	8	7	—	8	3	2	28
29	—	1	3	6	—	3	6	2	29
30	—	2	6	5	—	1	4	6	30
31	—	—	3	8	—	1	9	5	31
32	—	—	10	6	—	2	6	1	32
33	—	—	4	4	—	—	8	5	33
34	—	—	1	4	—	1	—	6	34
35	—	—	—	3	—	—	—	4	35
36	—	—	—	2	—	1	—	2	36
37	—	—	—	—	—	—	—	—	37
38	—	—	—	—	—	—	1	1	38
39	—	—	—	—	—	—	—	1	39
40	—	—	—	—	—	—	—	—	40
41	—	—	—	—	—	—	—	—	41
42	—	—	—	—	—	—	—	—	42
Totals ...	357	225	85	51	257	222	66	38	
Range of fifty per cent. (cm.)	14–18	19–23	25–30	28–33	15–20	20–24	26–31	30–34	
Average Length (cm.) ...	16·0	21·4	27·2	30·6	17·2	22·4	28·6	31·9	
Amended Average (cm.)...	16·5	21·9	27·7	31·1	17·7	22·7	29·1	32·4	
Probable Error of Average (cm.)	0·09	0·14	0·25	0·27	0·14	0·16	0·28	0·37	

TABLE 14.—Principal Age Groups on the **South Dogger** and **Flamborough Off** Grounds in Winter (October–March).

Samples, Nos. 14–19 and 32–36 combined.

—	Males.				Females.					—
Age Groups.	III.	IV.	V.	VI.	III.	IV.	V.	VI.	VII.	
Approximate Age : Years, months.	3, 7 to 4.	4, 7 to 5.	5, 7 to 6.	6, 7 to 7.	3, 7 to 4.	4, 7 to 5.	5, 7 to 6.	6, 7 to 7.	7, 7 to 8.	
Length in cm.										Length in cm.
15	1	—	—	—	—	—	—	—	—	15
16	—	—	—	—	—	—	—	—	—	16
17	—	—	—	—	—	—	—	—	—	17
18	—	—	—	—	—	—	—	—	—	18
19	—	—	—	—	—	—	—	—	—	19
20	2	—	—	—	—	—	—	—	—	20
21	1	—	—	—	3	—	—	—	—	21
22	—	—	—	—	3	—	—	—	—	22
23	5	2	—	—	4	—	1	—	—	23
24	5	—	—	—	6	—	—	—	—	24
25	1	2	—	—	8	—	—	—	—	25
26	6	—	—	—	7	2	1	—	—	26
27	8	5	—	—	4	—	—	—	—	27
28	9	6	1	1	7	2	1	—	—	28
29	12	2	1	—	7	8	—	—	—	29
30	4	9	3	—	14	3	—	—	—	30
31	5	5	1	1	7	5	1	—	—	31
32	5	14	7	—	9	11	—	—	—	32
33	7	16	3	1	13	12	—	—	—	33
34	5	13	5	1	9	28	2	1	—	34
35	3	20	7	2	6	17	3	—	—	35
36	—	12	12	3	5	24	9	1	—	36
37	—	4	11	2	3	30	7	3	—	37
38	—	9	11	3	2	18	5	1	—	38
39	—	8	3	4	—	20	4	2	—	39
40	—	3	4	5	1	16	11	4	2	40
41	1	1	8	3	—	13	17	6	—	41
42	—	1	4	—	—	4	12	6	—	42
43	—	—	1	—	—	2	7	2	—	43
44	—	—	1	1	—	2	7	3	3	44
45	—	—	—	—	—	—	2	6	2	45
46	—	—	—	—	—	1	6	5	3	46
47	—	—	—	—	—	—	3	3	4	47
48	—	—	—	—	—	—	5	8	3	48
49	—	—	—	—	—	—	1	1	3	49
50	—	—	—	—	—	—	—	1	1	50
51	—	—	—	—	—	—	—	—	1	51
52	—	—	—	—	—	—	—	2	1	52
56	—	—	—	—	—	—	—	—	1	56
Totals ...	80	132	83	27	118	218	105	55	24	
Range of fifty per cent. (cm.) ...	26–32	32–36	34–38	36–40	26–33	34–39	38–43	41–47	45–49	
Average Length (cm.)	28·6	33·6	36·5	37·6	29·9	36·1	40·5	43·6	47·0	
Amended Average (cm.)	**29·1**	**34·1**	**37·0**	**38·1**	**30·4**	**36·6**	**41·0**	**44·1**	**47·5**	
Probable Error of Average ...	0·32	0·22	0·26	0·44	0·27	0·16	0·30	0·37	0·48	

TABLE 15.—Principal Age Groups in the **Great West Bay** (English Channel) in Winter (November and February). Depth 3–7 and 17–30 fathoms.

Samples, Nos. 27, 28 and 53–56 combined.

—	Males.				Females.				—
Age Groups.	I.	II.	III.	IV.	I.	II.	III.	IV.	
Approximate Age : Years, months.	1, 9 to 2.	2, 9 to 3.	3, 9 to 4.	4, 9 to 5.	1, 9 to 2.	2, 9 to 3.	3, 9 to 4.	4, 9 to 5.	
Length in cm.									Length in cm.
12	1	—	—	—	—	—	—	—	12
13	3	—	—	—	2	—	—	—	13
14	3	—	—	—	6	—	—	—	14
15	11	—	—	—	12	—	—	—	15
16	11	—	—	—	11	—	—	—	16
17	7	2	—	—	6	—	—	—	17
18	9	—	—	—	3	—	—	—	18
19	8	3	—	—	6	—	—	—	19
20	8	10	—	—	6	2	—	—	20
21	12	8	—	—	7	4	—	—	21
22	11	7	2	—	12	3	—	—	22
23	14	10	3	—	4	8	1	—	23
24	8	20	3	1	6	13	3	—	24
25	6	21	2	—	8	23	2	—	25
26	2	45	—	—	6	24	4	—	26
27	1	57	3	—	1	38	4	—	27
28	2	50	2	2	2	33	4	1	28
29	—	36	6	1	1	37	5	—	29
30	—	21	7	4	—	24	12	1	30
31	—	9	10	2	—	18	14	2	31
32	—	2	12	—	—	10	10	6	32
33	—	3	6	5	—	5	7	3	33
34	—	2	6	2	—	4	11	6	34
35	—	1	3	6	—	2	2	6	35
36	—	—	3	2	—	—	4	2	36
37	—	—	1	1	—	1	2	3	37
38	—	—	—	—	—	—	2	—	38
39	—	—	—	—	—	—	1	4	39
40	—	—	—	—	—	—	2	4	40
41	—	—	—	—	—	—	—	1	41
Totals ...	117	307	69	26	99	249	90	39	
Range of fifty per cent. (cm.)	17–23	25–28	29–33	30–35	16–23	26–29	29–33	32–37	
Average Length (cm.) ...	19·8	26·6	30·5	32·4	19·9	27·8	31·3	35·0	
Amended Average (cm.)...	20·3	27·1	31·0	32·9	20·4	28·3	31·8	35·5	
Probable Error of Average (cm.)	0·23	0·11	0·29	0·41	0·28	0·12	0·26	0·35	

TABLE 16.—Principal Age Groups in **Tor Bay** and **Start Bay** in August, 1909. Depth 3–8 fathoms.

Samples Nos. 57 and 58 combined.

—	Males.			Females.					—
Age Groups.	I.	II.	III.	I.	II.	III.	IV.	V.	—
Approximate Age : Years, Months.	1, 6.	2, 6.	3, 6.	1, 6.	2 6.	3, 6.	4, 6.	5, 6.	
Length in cm.									Length in cm.
12	2	—	—	—	—	—	—	—	12
13	—	—	—	—	—	—	—	—	13
14	12	—	—	6	—	—	—	—	14
15	19	—	—	19	—	—	—	—	15
16	41	—	—	31	—	—	—	—	16
17	58	—	—	33	—	—	—	—	17
18	64	—	—	46	—	—	—	—	18
19	40	—	—	33	1	—	—	—	19
20	30	1	—	27	1	—	—	—	20
21	20	—	—	8	5	—	—	—	21
22	5	—	—	6	1	—	—	—	22
23	5	1	—	3	—	—	—	—	23
24	1	3	1	1	—	1	—	—	24
25	—	6	—	—	—	1	—	—	25
26	—	3	—	1	2	1	—	—	26
27	—	4	—	—	—	1	—	—	27
28	—	4	2	—	5	1	—	—	28
29	—	7	1	—	4	1	—	—	29
30	—	4	3	—	5	1	—	—	30
31	—	1	5	—	5	2	2	—	31
32	—	2	1	—	1	2	1	—	32
33	—	1	1	—	—	5	—	—	33
34	—	—	2	—	1	6	3	—	34
35	—	—	—	—	—	2	2	1	35
36	—	—	1	—	—	3	—	—	36
37	—	—	—	—	—	2	1	—	37
38	—	—	—	—	—	1	4	3	38
39	—	—	—	—	—	—	1	3	39
40	—	—	—	—	—	1	—	—	40
41	—	—	—	—	—	—	—	1	41
42	—	—	—	—	—	—	1	1	42
43	—	—	—	—	—	1	—	1	43
44	—	—	—	—	—	—	—	—	44
45	—	—	—	—	—	—	1	2	45
46	—	—	—	—	—	—	—	—	46
47	—	—	—	—	—	—	1	—	47
48	—	—	—	—	—	—	—	1	48
Totals ...	297	37	17	214	31	32	17	13	
Range of 50 per cent. (cm.)	17–19	25–29	30–32	16–19	22–30	31–35	34–38	38–43	
Average Length (cm.) ...	17·8	27·4	30·8	17·9	27·2	33·0	6·	40·8	
Amended Average (cm.)...	**18·3**	**27·9**	**31·3**	**18·4**	**27·7**	**33·5**	**37·4**	**41·3**	
Probable Error of Average (cm.).	0·08	0·31	0·45	0·09	0·51	0·50	0·74	0·68	

V.—The Average Annual Growth of Plaice in Length and Weight.

1. *Material and Method.*

Tables 11–19, *and Figs.* 6 *and* 7.

The determination as accurately as possible of the average annual growth of Plaice in length and weight has a direct bearing on certain practical questions and has, therefore, been made one of the chief tasks in connection with the present research.

My report of 1907* contained an estimate, which the results of later and fuller investigations (detailed below) have confirmed, of the average annual growth in *length* in the Southern North Sea as a whole, based on the otolith analysis of the material collected up to the end of 1905. In the following pages will be found a considerable amount of further material for an estimate of the growth of plaice, not only in the North Sea, but also in the Western part of the English Channel.

The directions in which progress has been made since the publication of my 1907 report on the subject are indicated in the next four paragraphs.

1.—On the basis of the more abundant material now available we are able to estimate the average yearly growth of plaice in certain regions with a closer approximation to accuracy than has hitherto been possible. Especial efforts have been made to obtain as correct an estimate as possible of the average annual growth during the first five years in the Southern Bight of the North Sea (South of the Dogger), between the English and Dutch coasts.

2.—In my report of 1907 only the growth in *length* was dealt with. I am now able to give figures for an approximate estimate of the average annual growth in *weight* in the North Sea, deduced by means of Heincke's formula from the average lengths of successive age-groups.

3.—Our further collections from the Western part of the English Channel have afforded material for an estimate of the average annual growth in length during the first five years in this region.

4.—The probable errors of the averages on which the estimates of growth-rate are based have been calculated. Their effect in determining the degree of accuracy of the weight estimated is indicated in Fig. 8.

The most important conclusions regarding the average yearly growth of plaice in different regions, as ascertained by means of the material and methods described in the next few pages, are summarised at the end of the section (pp. 148, 149).

In the present section estimates will be adduced of the annual average growth of plaice during certain life years in the following three regions :—

A.—The Southern Bight of the North Sea, between the Dutch and English Coasts, and including the region of the Leman Banks.

B.—The South Dogger region ; including the Flamborough Off Ground.

C.—The Western part of the English Channel (Great West Bay).

Tables 11–16. The materials for our estimate of average yearly growth in the Texel-Leman, South Dogger, and West Channel regions respectively, are contained in these tables.

At the foot of each column appropriated to each age group are recorded :—

1.—The range-in-length of fifty per cent. of the group, as defined by the two "Quartiles."

* Wallace 1907, p. 33.

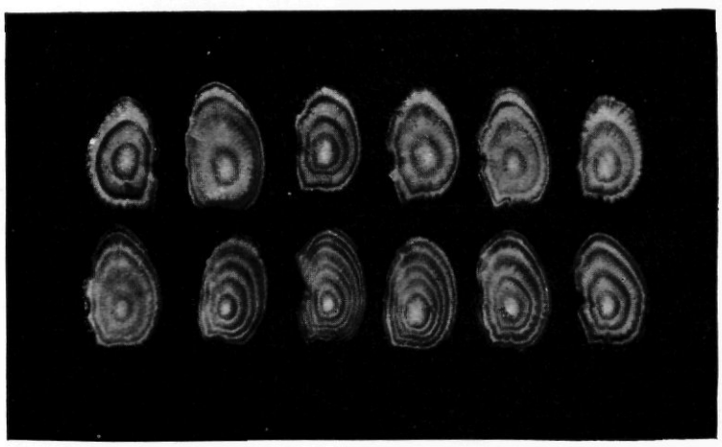

FIG. 6.—Otoliths of mature male plaice.—Upper row—Otoliths of plaice from the West Bay (English Channel); Lower row—Otoliths of plaice taken in the Southern Deep Water of the North Sea, near the Gabbard Light Vessel.

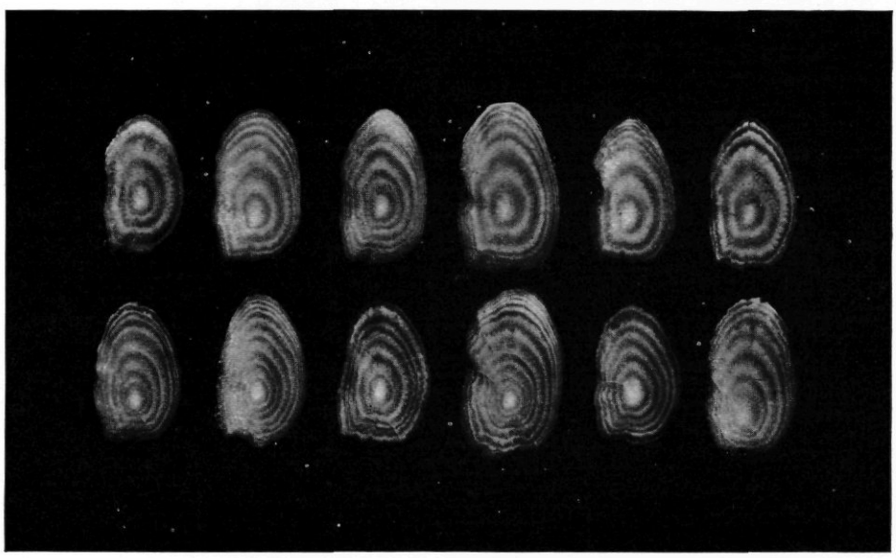

FIG. 7.—Otoliths of mature female plaice.—Upper row—Otoliths of plaice from West Bay (English Channel); Lower row—Otoliths of plaice taken in the region of the Leman Banks (North Sea).

2.—The average length as calculated from the original measurements in centimetres and amended by the addition of 0·5 cm. This addition to the calculated average is necessary owing to the method of measuring the fishes according to which fractions of a centimetre are neglected, so that, for instance, a fish measuring 20·9 cm. is regarded as 20 cm. It follows that an average based on measurements grouped in this way must be 0·5 cm. too low: hence the necessary addition.

3.—The probable error of the average as calculated by means of the formula $\pm 0{\cdot}6745 \frac{\sigma}{\sqrt{n}}$ in which σ = the standard deviation and n = the number of fishes in the age group.

As will be seen from a reference to Tables 11–16, the "probable errors" of the averages are very small in the cases of well-represented age groups, and are never too high to invalidate the approximate estimates of yearly growth required for our present purpose, or the general inferences drawn from them, and stated at the end of this section.

The validity of *separate* estimates of the average annual growth for the Southern Bight, South of Dogger region, and Great West Bay respectively, based on the average lengths of successive age-groups in our separate collections from these three regions, depends on the extent to which the stock of plaice (of the ages involved in each separate estimate) is confined to each region. How far the stock of plaice in each of the regions A, B, and C is independent of that in the other two regions cannot be precisely stated at present; but the results of marking experiments* prove that there is a certain amount of interchange between the plaice population of the first two regions, A and B.

Pending further information from the marking experiments we shall assume that the *main mass* of plaice *up to five years of age* found in the Southern Bight (including the Leman region) is bred in and mainly confined its cycle of movements to this region; and that this is the case also with the plaice in the West Channel region,† *the otoliths of which may be generally easily distinguished from those of North Sea plaice by the relatively great breadth of the first one or two rings white* (outside the nucleus), indicating relatively rapid growth during the *earlier* years in this region.

Figs. 6 & 7 clearly show the relatively great breadth of the first or first and second white rings in the otoliths of plaice from West Bay as compared with the breadth of the corresponding rings in otoliths of plaice from the Southern North Sea. For these excellent photographs I am indebted to Mr. H. H. Goodchild, of the Lowestoft Laboratory. The otoliths were not selected in any way, but taken at random from our collections.

With regard to plaice of four to seven years of age in the South Dogger region it will be noticed (*see* Table 14) that I have combined samples from the Flamborough Off Ground with samples from the South part of the Dogger to form one large collection. This combination appears justified by the following considerations:—

(1.) The average length of plaice of a given age is approximately the same on the Flamborough Off Ground as on the South part of the Dogger (*see* Tables 8 and 9).

(2.) The results of English marking and transplantation experiments show that mature plaice emigrate from the South part of the Dogger to the Flamborough Off Ground in winter. (I refer particularly to the results of the 1906–08 experiments, not yet published.)

(3.) Garstang‡ has shown that there are complementary seasonal changes on the two grounds as regards the density-distribution of the larger fishes, pointing to a spawning migration from the South Dogger to the Flamborough Off Ground in winter.

We know, however, from the results of English marking experiments that certain numbers of plaice (especially males) emigrate from the Flamborough Off Ground to the Southern Bight in winter and, conversely, cases of migration from the latter to the former region have been noted.

---

* I refer especially to the results of the more recent English marking and transplantation experiments of 1906–08, reports on which are (at the time of writing this) in course of preparation.

† At the time of writing I am aware of only two instances on record of English marked plaice migrating into this region from the North Sea; one liberated on the Flamborough Off Ground, the other on the Leman Ground. I owe this information to my colleague, Mr. G. T. Atkinson.

‡ Garstang, 1909, p. 87, &c.

We cannot, therefore, at present state to what extent the plaice of four to seven years of age found in the South Dogger region belong to a separate stock from that in the Southern Bight ; neither can we definitely assert that the main mass of plaice which arrive on the South part of the Dogger when four years old perform the whole, or at least the bulk of their growth during the next three years in this region, as the requirements of a separate estimate of growth-rate for this region would imply. All that can be claimed as highly probable is that the effect of growth actually performed on the Dogger is mainly instrumental in determining the relatively high values of the average lengths of plaice of four to seven years of age in this region and that subsequently the estimates based on these data and the curves derived therefrom (Fig. 8) are mainly the expression of growth on the Dogger itself.

Southern Bight.—Especial efforts have been made to obtain sufficiently correct estimates of the average annual growth of plaice during the first five years of their lives in this region *as a whole*. As shown by marking experiments and other data, the Southern Bight of the North Sea derives its chief supplies of plaice from the adjacent Dutch coast* ; and there is a gradual movement offshore with increase in size, independently of age, so that the average length of plaice of a given age becomes greater and greater as the distance from the coast of Holland increases.† From this follows the necessity of making collections embracing as far as possible the entire range of distribution of each age group, by trawling in continuous radial lines from the near neighbourhood of the shore as far as the central parts of the region.

Four such continuous radial series of hauls have been carried out for this purpose across the Southern Bight, viz.,

A.—Across the Northern part ; from the "Texel" to the Leman Banks. This track coincides with the main axis of summer offshore migration as demonstrated by Garstang.‡

Three continuous series of hauls have been made along this track, viz., in May, 1905 (Sample No. 2) ; in September, 1905 (Sample No. 12), and, finally in May, 1905 (Samples Nos. 40–42).

The results of otolith-analysis of the plaice collected along this track in May, 1905, and September, 1905, were recorded and discussed in my report of 1907,§ and on the resulting figures estimates were based of the average annual growth which are confirmed by the more recent investigations in the same region recorded below.

B.—Across the *middle* part of the Southern Bight ; from the inner part of the Brielle Ground (Off Scheveningen) to the Southern Deep Water in May, 1906 (Sample Nos. 46–48).

Here we need only consider the collections of September, 1905, and May, 1906, made along the Texel-Leman track and the collection of May, 1906, between Scheveningen and the Eastern Deep Water (Tables 12 and 13). From the average lengths of the *principal* age-groups in these three collections from the Southern Bight we shall obtain our new estimates of the average annual growth in this region.

Unfortunately we are unable to determine from the otolith-analysis of these collections, the average growth for each of the first three years *separately*, because the I. Group in September, 1905, and both the I. Group and II. Group in May, 1906, are inadequately represented in these collections, owing to the fact that a large proportion of these groups (the main mass in the case of the I. Group) remains in shallower water, further inshore than the Eastern extremities of the lines trawled over in making these collections. Accordingly we are obliged to start with the average length of the II. Group in September and that of the III. Group in May, and to take the mean of these two values as representing the average length at the end of the third year (*i.e.*, when just three years of age). This quantity divided by three, gives us the average annual growth during the first three years.

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* See Section III.
† Wallace, 1907, p. 22, &c., and Fig. 7.
‡ Garstang, see especially, 1909, p. 94. and charts, Plates V. and VI.
§ Wallace, 1907, pp. 24, 25, 31, 32. Figs. 8–11 and 13.

TABLE 17.—Average Length of Principal Age Groups of PLAICE trawled between the Texel and the Leman Banks and between Scheveningen and the Southern Deep Water respectively.

Age Groups.	Males.		Females.	
	Texel to Leman.	Scheveningen to Southern Deep Water.	Texel to Leman.	Scheveningen to Southern Deep Water.
II. Group.—September, 1905 ...	20·0	—	20·9	—
III. Group.—May, 1906 ...	21·3 } 20·6[3]	21·9	22·5 } 21·7[3]	22·7
III. Group.—September, 1905 ...	25·4	—	25·8	—
IV. Group.—May, 1906 ...	27·2 } 26·3[4]	27·7	28·8 } 27·3[4]	29·1
IV. Group.—September, 1905 ...	29·3	—	30·9	—
V. Group.—May, 1906	30·9 } 30·1[5]	31·1	32·9 } 31·9[5]	32·4

[3] = Average length when 3 years old = mean of II. Group (September) and III. Group (May).
[4] = " " 4 " " III. " " IV. " "
[5] = " " 5 " " IV. " " V. " "

Inference from Table 17.—Comparing age group with age group in our collections of May, 1906, from the Texel-Leman and Scheveningen Deep Water regions respectively, we see that the average lengths of plaice of the same age do not differ significantly (0·2–0·6 cm.) in the two collections. The somewhat higher values (except in the case of the V. Group, females) for Scheveningen-Deep Water are probably to be explained by the circumstance that only about one-third of the total number of plaice caught in the most inshore haul (Sample No. 46[1]) of the series is included (together with *all* the plaice caught in the other hauls) in the collection ; whereas the Texel-Leman collection includes all the plaice caught on the most inshore station (Sample No. 42[2]) as well as as on the other stations of the line. The Texel-Leman averages are, therefore, likely to be more accurate, the Scheveningen-Deep Water averages being *slightly* too high, owing to the fact that they are based on samples containing an insufficient proportion of the smaller inshore representatives of each age group. *The small differences between the two series of averages are, however of trifling account for our present purpose.*

The close approximation in value of the average lengths of the same age groups in the Northern and Middle sections respectively of the Southern Bight, as determined by means of the material and methods just described, may be said to establish on a satisfactory basis our estimates of the average yearly growth in this region as a whole.

2. *Method of Estimating Average Annual Growth in Weight.*

If we are given the length of a plaice in centimetres (l) we can find its weight in grammes (g) by means of the formula

$$g = \frac{l^3}{100} \times K.$$

The ratio K, called by Heincke* "the Length-Weight Coefficient," varies from about 0·8 – 1·2 cm., according to the "condition" of the fish. The value of K., therefore varies according to season and place of capture, and also with size (if not with sex).

From abundant records of the average weight (in grammes) of plaice of different centimetre lengths, recently published by the English Board of Agriculture and Fisheries† and by the Dutch Marine Station at Helder‡ respectively, the value of K. has been calculated§ for different months for various large regions (based on depth contours) into which the North Sea has been divided for statistical purposes. The values of K. thus obtained are of great value for (among other things) the purpose of converting statistics of length into statistics of weight, and have been made use of in connection with the present

* Heincke and Henking, 1907, p. 27.
† Masterman, W., 1908 and 1909, Cd. 4227 and Cd. 4738. Tables (for full reference, see p. 152).
‡ Redeke, 1909. Verhandelungen, u.h. Ryksinstituut, v.h. onderzoek der Zee, 2nd. Deel, Nos. 4–5. Anhang. Tabellen I.–IV. "Messungen und Waegungen von Kleinen Marktschollen aus der Nordsee gelandet in Ijmuiden und Helder, 1904–06.
§ By Mr. J. Potter, of the Lowestoft Laboratory.

research to obtain estimates of the average weights of different age groups in the North Sea from the length data given in Tables 11–16.

In using the formula $g = \frac{l^3}{100} \times K$. for the conversion of the average length of an age group into the average weight of the same, it is necessary to take account of the difference (pointed out by Heincke) between the average of the cubes of the individual lengths (a) and the cube of the average length (b). In the case of a varying series such as an age group, these two quantities are not identical, but *a* is somewhat larger than *b* ; the ratio $\frac{a}{b}$ ranging from 1·02—1·13, according to our calculations, being smaller for the older than for the younger age groups, as shown in the following table :—

VALUES of the Ratio $\frac{a}{b}$ for different age groups calculated for the data recorded in Tables 11–14.

Region.	Period of Year.	Sex.	Age Groups.				
			II.	III.	IV.	V.	VI.
South Dogger–Flamborough Off ...	October–March	M.	—	1·06	1·04	1·03	1·02
		F.	—	1·07	1·03	1·04	1·03
Texel–Leman	May, 1906	M.	1·11	1·08	1·05	1·04	—
		F.	1·13	1·08	1·05	1·05	—
Texel–Leman	September, 1905	M.	1·06	1·04	1·03	—	—
		F.	1·06	1·05	1·04	—	—

a = average of cubes of individual lengths.
b = cube of average length.

The values of the ratio $\frac{a}{b}$ used by Heincke as a general factor in converting the average lengths of his age groups into their average weights was 1·1 (*see* Heincke, 1907, p. 28).

$$Gm = \frac{Lm^3}{100} K \frac{a}{b}.$$

This is Heincke's formula* by means of which the average weight of an age group in grammes (Gm) may be calculated, provided we are given the average length in centimetres Lm) and the appropriate values of the ratios K and $\frac{a}{b}$.

We may illustrate the method of calculation generalised in the above formula by two concrete examples, showing how we have obtained our estimates of the average weights in different age groups in two regions of the North Sea from the length-data recorded in Tables 11, 12 and 14.

First Example.—To determine the average weight of five year old female plaice in the South Dogger region. In this case the values of the three factors Lm, K, and $\frac{a}{b}$ required by the formula are as follows :—

(1.) Lm. The average length of the IV. Group (females) in winter (practically five years of age) in our collection from this region (Table 14) is 36·6 cm.

* Heincke and Henking, 1907, p. 28.

(2.) K. The mean value of K for the statistical area B_1 (the Dogger as a whole) for the months of October, January and March (the months in which our samples from this region were obtained) is approximately 1·1. This is obviously the most appropriate value of K to use as our factor in this case.

(3.) $\frac{a}{b}$. The value of this ratio for the IV. Group (females) in our South Dogger collection is 1·03.

The range of probable error of the average length of the IV. Group (females) in our South Dogger collection (Table 14), is approximately 36·4–36·8 cm. The weights corresponding to these two limiting values were calculated in the same way as the average weight (*see* below).

Giving to the factors Lm, K, and $\frac{a}{b}$ their appropriate values and combining them according to the formula, we obtain the following scheme for calculation :—

$$\frac{(36{\cdot}8)^3}{100} \times 1{\cdot}1 \times 1{\cdot}03 = 564{\cdot}6 \text{ gr.} = \text{upper limit of probable error.}$$

$$\frac{(36{\cdot}6)^3}{100} \times 1{\cdot}1 \times 1{\cdot}03 = 555{\cdot}5 \text{ gr.} = \text{average weight.}$$

$$\frac{(36{\cdot}4)^3}{100} \times 1{\cdot}1 \times 1{\cdot}03 = 546{\cdot}4 \text{ gr.} = \text{lower limit of probable error.}$$

Result.—The above calculation give us 555 grammes as the approximate average weight of five-year-old female plaice in the South Dogger region and 546–565 grammes as the range of probable error of the average.

Second Example.—To determine the average weight of four-year-old male plaice in the Texel-Leman region (*see* Tables 11 and 12).

In this case the separate calculations necessary to obtain appropriate values for the individual factors Lm, K, and $\frac{a}{b}$ are as under :—

(1.) Lm. The average length of the III. Group (males) in the September collection is 25·4 cm.; that of the IV. Group in the May collection is 27·2 cm. The *mean* of these two values is 26·3 cm. This gives approximately the average length at the *end* of the fourth year; which is the value of Lm required.

(2.) K. The average length of the length-weight coefficient for the statistical area B_3 (which *includes* the Texel-Leman region) is about 0·95 for May, and 1·11 for September. The mean of these two figures, viz., 1·03, is evidently the most appropriate value of K for our present purpose.

(3.) $\frac{a}{b}$. The value of this ratio for the III. Group (males) in the September collection is 1·04, that for the IV. Group in the May collection, 1·05, that is to say they are practically identical.

The range of probable error of the average length of the III. Group (males) in the September collection (viz., 25·4 cm.) is approximately 25·3–25·5 cm. The range of probable error of the average length of the IV. Group in the May collection (viz., 27·2 cm.) is about 27·0–27·4 cm. The mean range of probable error of the average length of four-year-old males is therefore about 26·1-26·5 cm. The foregoing calculations are combined in the following scheme :—

$$\frac{(26{\cdot}5)^3}{100} \times 1{\cdot}03 \times 1{\cdot}04 = 199{\cdot}3 \text{ gr.} = \text{upper limit of probable error.}$$

$$\frac{(26{\cdot}3)^3}{100} \times 1{\cdot}03 \times 1{\cdot}04 = 194{\cdot}9 \text{ gr.} = \text{average weight.}$$

$$\frac{(26{\cdot}1)^3}{100} \times 1{\cdot}03 \times 1{\cdot}04 = 190{\cdot}5 \text{ gr.} = \text{lower limit of probable error.}$$

TABLE 18.—Average Length and approximate Weight of PLAICE of Different Ages in the Texel–Leman region, South Dogger region, and Great West Bay (length only) respectively.

The averages are printed in thick type. The two figures in ordinary type above and below each average show the range of Probable Error of the average.

Age. Years.	Males.					Females.				
	Texel to Leman.		South Dogger and Flamborough Off.		Great West Bay.	Texel to Leman.		South Dogger and Flamborough Off.		Great West Bay.
	Average Length. cm.	Average Weight. gr.	Average Length. cm.	Average Weight. gr.	Average Length. cm.	Average Length. cm.	Average Weight. gr.	Average Length. cm.	Average Weight. gr.	Average Length. cm.
3	20·7	98	—	—	27·2	21·8	114	—	—	28·4
	20·6	**96**	—	—	**27·1**	**21·7**	**113**	—	—	**28·3**
	20·5	95	—	—	27·0	21·6	111	—	—	28·2
4	26·5	199	29·4	296	31·3	27·5	225	30·7	340	32·1
	26·3	**195**	**29·1**	**287**	**31·0**	**27·3**	**220**	**30·4**	**331**	**31·8**
	26·1	190	28·8	278	30·7	27·1	215	30·1	321	31·5
5	30·4	298	34·3	462	33·3	32·2	358	36·8	565	35·8
	30·1	**289**	**34·1**	**454**	**32·9**	**31·9**	**348**	**36·6**	**555**	**35·5**
	29·8	281	33·9	446	32·5	31·6	338	36·4	546	35·2
6	—	—	37·3	588	—	—	—	41·3	806	—
	—	—	**37·0**	**574**	—	—	—	**41·0**	**788**	—
	—	—	36·7	560	—	—	—	40·7	771	—
7	—	—	38·5	640	—	—	—	44·5	998	—
	—	—	**38·1**	**620**	—	—	—	**44·1**	**972**	—
	—	—	37·7	601	—	—	—	43·7	945	—

TABLE 19.—Average Annual Increase in Length (cm.) and Weight (gr.) in three Regions, viz., Texel–Leman, South Dogger, and Great West Bay.

Growth Period.	Males.					Females.				
	Texel–Leman.		Dogger-Flamborough Off.		Great West Bay.	Texel–Leman.		Dogger–Flamborough Off.		reat West Bay.
	Length Increase. cm.	Weight Increase. gr.	Length Increase. cm.	Weight Increase. gr.	Length Increase. cm.	Length Increase. cm.	Weight Increase. gr.	Length Increase. cm.	Weight Increase. gr.	Length Increase. cm.
First Three Years	20·6	96	—	—	27·1	21·7	113	—	—	28·3
	M*=6·9	M*= 32			M*=9·0	M*=7·2	M*= 38			M*=9·4
Fourth Year ...	5·7	99	—	—	3·9	5·6	107	—	—	3·5
Fifth „ ...	3·8	94	5·0	167	1·9	4·6	128	6·2	224	3·7
Sixth „ ...	—	—	2·9	120	—	—	—	4·4	233	—
Seventh „ ...	—	—	1·1	46	—	—	—	3·1	184	—

M* = Mean Annual Increment for first three years.

Result.—The above calculations give us 195 grammes as the approximate average weight of four-year-old male plaice in the Texel-Leman region and 190–199 grammes as the approximate range of probable error of the average.

§ 3. *Chief Inferences from Tables* 18 *and* 19 *and Fig.* 8.

1.—In the Southern North Sea, according to these investigations, a plaice normally adds as much to its weight in the fourth year of its life as it does in the three previous years taken together.

2.—The greatest absolute average increase in weight apparently occurs in the fifth and sixth years of life.

3.—The results of otolith-analysis of samples taken in the South Dogger region indicate a marked diminution in the yearly average weight-increment after the fifth year in the case of the males, whereas in that of females there is apparently no diminution in the sixth and little if any in the seventh year.

4.—In the *Southern Bight* of the North Sea the average length of three-year-old plaice is about 21 cm. for males and 22 cm. for females, *i.e.*, about 8½ inches for the two sexes combined.

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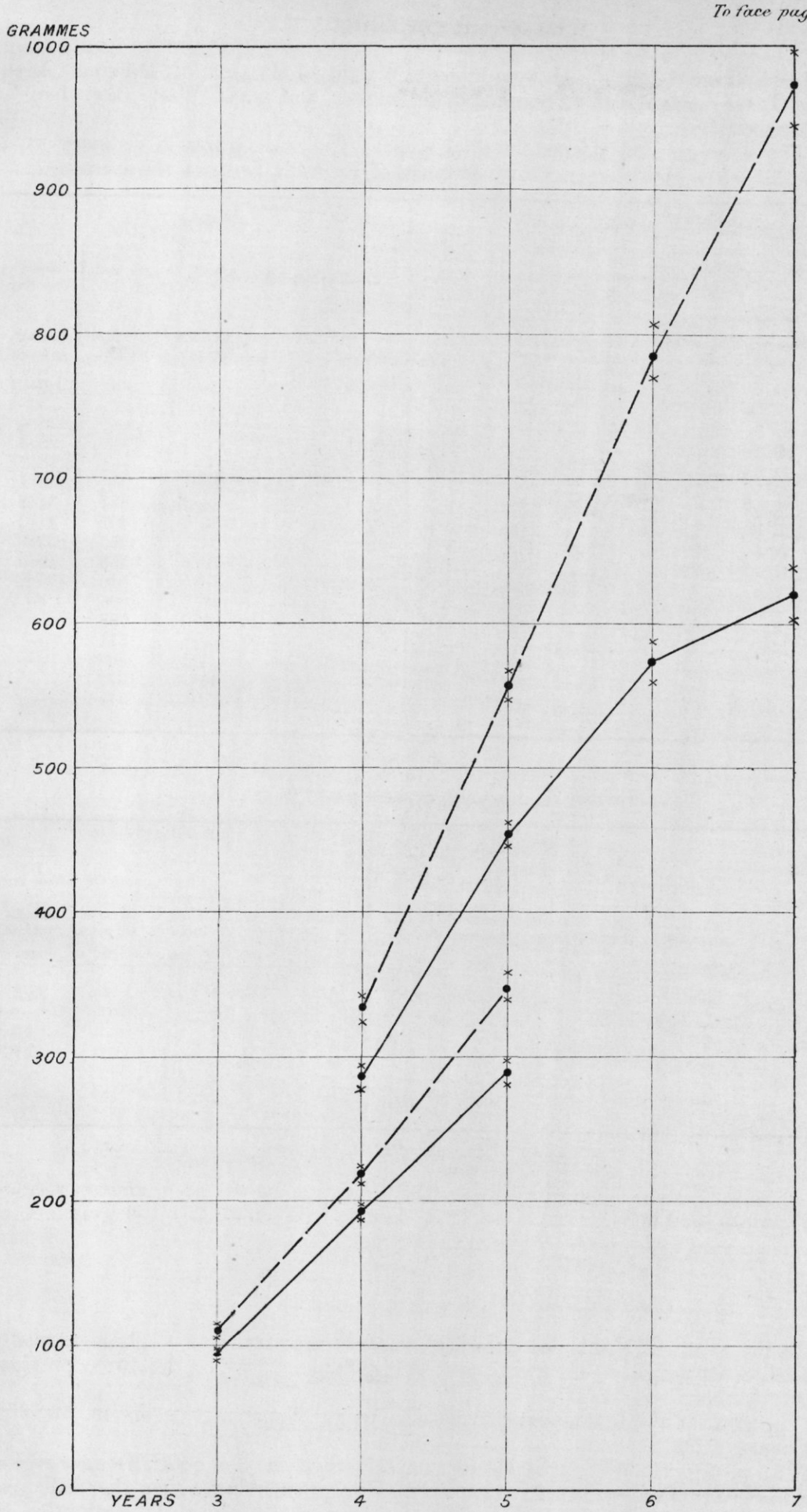

FIG. 8. *Showing approximate Average Annual Growth in Weight of Plaice in the North Sea.*
Upper pair of curves refer to the South Dogger region.
Lower " " " " " " Texel-Leman region.
Continuous Line = Males, Broken Line = Females.
Crosses × indicate range of Probable Error of the Averages. (See Table 18.)

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In the *Great West Bay* the average length of plaice of the same age is about 27 cm. for males and 28 cm. for females, *i.e.*, about $10\frac{3}{4}$ inches for both sexes.

These results give an average annual increment during the first three years of about 7 cm. in the Southern Bight of the North Sea, and 9–9·5 cm. in the Western part of the Channel.

In the fourth year the absolute average increase in length is apparently about 5·5 cm. in the Southern Bight and about 3·5–4 cm. in the Great West Bay.

In the fifth year the absolute average increase in length, according to our results, is about 4 cm. (males) and 4·5 cm. (females) in the Southern Bight and about 2 cm. (males) and 3·5 cm. (females) in the Great West Bay.

These results indicate that while plaice grow considerably more rapidly in the Great West Bay than in the Southern Bight of the North Sea during the first three years of their lives, they grow less rapidly after that period, the earlier retardation of growth counteracting the effect of more rapid initial growth.

APPENDIX.

Comparison with Heincke's Estimates of the Yearly Growth of Plaice in the German Bight.

From an otolith-analysis of samples of plaice collected in the German Bight, off the islands of Heligoland, Borkum, Juist, and Sylt, Heincke* obtained the following values† for the average lengths of fishes of the ages of three to five years respectively :—

------	Three-Years Old.	Four-Years Old.	Five-Years Old.
	cm.	cm.	cm.
Males	19·6	23·5	26·2
Females	20·2	25·0	27·2

The corresponding averages obtained as a result of my otolith-analysis of collections made by trawling continuously in a line extending from the near neighbourhood of the Dutch Coast (" the Texel ") to that of the Leman Banks (*see* Table 17) are as under :—

——	Three-Years Old.	Four-Years Old.	Five-Years Old.
	cm.	cm.	cm.
Males	20·6	26·3	30·1
Females	21·7	27·3	31·9

Comparing the two series of figures we see that the average lengths of plaice in Heincke's samples from the German Bight are smaller than ours for the Texel-Leman region (and Southern Bight generally) ; the difference between his and my values amounting to as much as 4–5 cm. in the case of the fifth year.

It will be interesting now to compare the average annual increments in length and weight based on the two series of averages.

The following figures represent the average yearly growth-increments in the German Bight, according to Heincke.

——	First Three Years (mean).		Fourth Year.		Fifth Year.	
	cm.	gr.	cm.	gr.	cm.	gr.
Males	6·6	25	3·8	52	3·0	58
Females	6·7	27	4·8	72	2·8	60

* Heincke and Henking—" Uber Schollen und Schollenfischerei in der sudostlichen Nordsee " 1907, pp. 18–30, Tables II.–VIII.

† These are the means of the averages for three different collections, viz., (1) Heligoland : September to November ; (2) Sylt, Borkum u. Juist : March ; (3) Sylt : May.

According to my calculations based on the Texel-Leman material the average yearly growth-increments are as follows :—

—	First Three Years (mean).		Fourth Year.		Fifth Year.	
	cm.	gr.	cm.	gr.	cm.	gr.
Males	6·9	32	5·7	99	3·8	94
Females	7·2	38	5·6	107	4·6	128

Comparison between these two series of data might appear to indicate considerably slower average growth, especially during the fourth and fifth years, in the German Bight than in the Southern Bight. *The two series of values are not, however, strictly comparable*, as may be gathered from what has been said above regarding the necessity of allowing for the selective migration according to size of fishes of a given age by extending the area of collection to considerable distance from land in the direction of migration, thereby obtaining as far as possible a representative sample of each age group *as a whole*, in which the length-frequencies occur in approximately their true proportions. It seems reasonable, therefore, to suspect that Heincke's values for the average lengths of plaice of three to five years of age, as determined by the analysis of isolated samples obtained not far from the German Coast, involve an insufficient proportion of the largest fishes of each age group and consequently lead to an under-estimate of the true average yearly growth in the German Bight as a whole.

VI.—The Proportion of the Sexes at Different Ages in the North Sea and English Channel.

Tables 20 *and* 21. *Figs.* 9 *and* 10.

In my 1907 report* I gave some data to show the proportion of the sexes in successive years of life in a collection of plaice from the North Sea, consisting of all fishes of which the sex *and* age had been recorded (by us) up to the end of 1905. To the numbers given in Table 6 of that report have been added the new records of age and sex for plaice taken in the North Sea *since* 1905 ; and the result is Table 20 below. Table 21 contains all the age-and-sex determinations for plaice collected in the Western part of the English Channel during the whole period 1904–09.

In both these collections, viz., from the North Sea and from the Western part of the English Channel respectively, we find a small majority of males in the earlier years gradually giving place to a rapidly increasing preponderance of females in the later years ; but *the age at which the change in the proportions of the sexes occurs is about two years earlier in the collection from the Channel than in that from the North Sea.*

This is shown in Figs. 9 and 10 by x, the foot of the perpendicular from the point y where the curves of male and female percentage cross one another. This is the age at which the proportion of the sexes are equal.

Now in the Western part of the English Channel, as was shown in my 1909 report, the majority of males first become mature when they are three years old (II. Group in winter), whereas in the more central parts of the North Sea (including the Leman region) the average age of males at first maturity is five years (IV. Group in winter).

Table 20.—Numbers and **Percentages** of Males and Females at different Ages in collection from the North Sea.

Age Groups		I.	II.	III.	IV.	V.	VI.	VII.	VIII. +	Total.
Year of Life		2.	3.	4.	5.	6.	7.	8.	9. +	
Males	Number	357	3,074	2,635	1,393	394	86	29	20	7,988
	Per cent.	63	56	55	51	50	42	27	13	—
Females ...	Number	207	2,429	2,142	1,333	388	120	78	135	6,832
	Per cent.	37	44	45	49	50	58	73	87	—

* Wallace, 1907, p. 34, Table 6.

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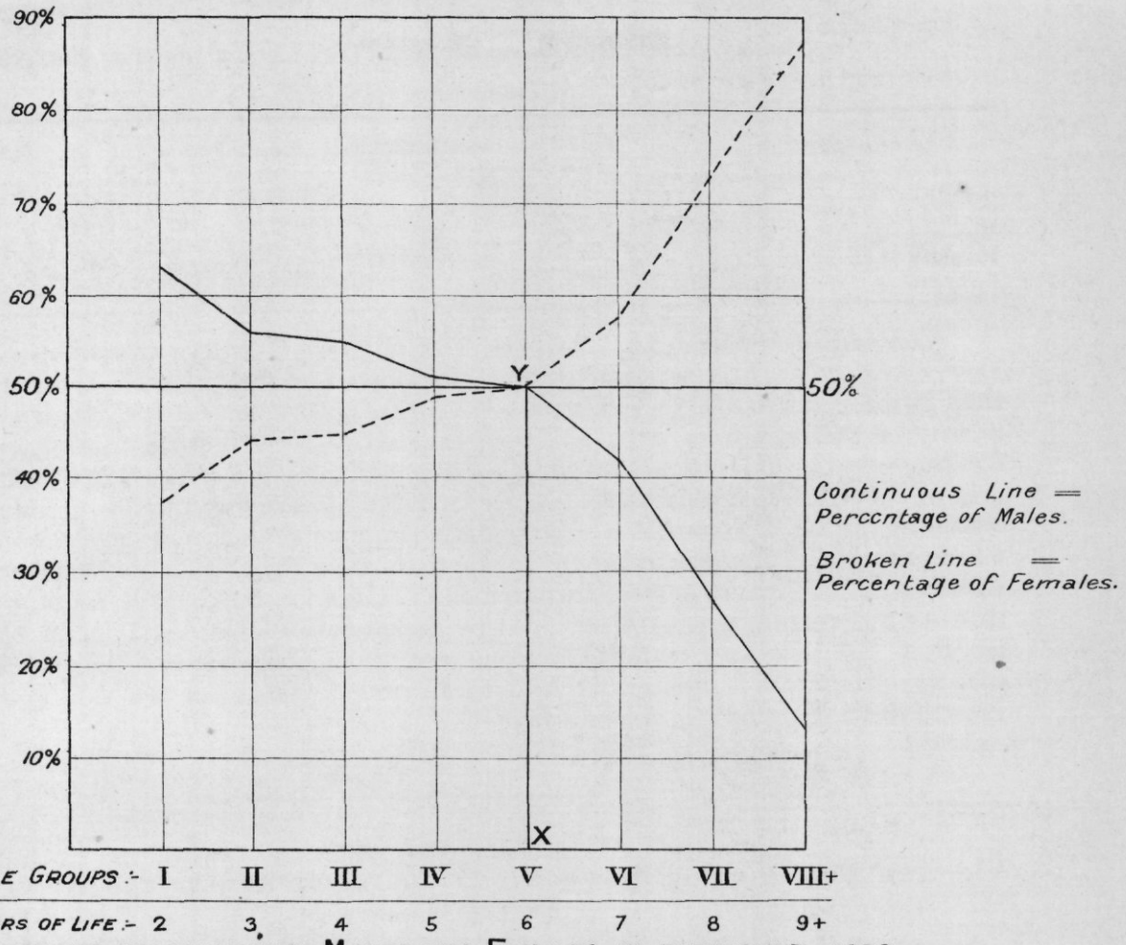

FIG. 9. SHOWING PERCENTAGE OF MALES AND FEMALES AT DIFFERENT AGES, IN A COLLECTION OF 14,820 PLAICE FROM THE NORTH SEA.
TO ILLUSTRATE TABLE 20.

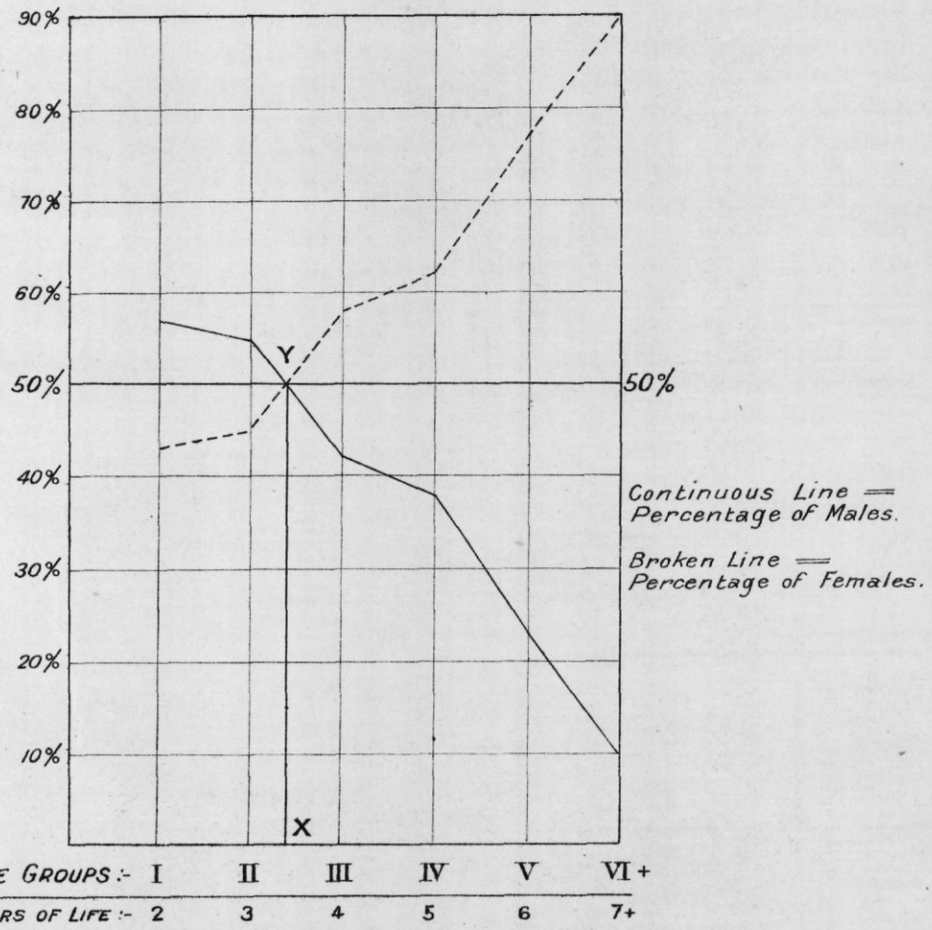

FIG. 10. SHOWING PERCENTAGE OF MALES AND FEMALES AT DIFFERENT AGES IN A COLLECTION OF 1.703 PLAICE FROM WEST BAY (ENGLISH CHANNEL.)
TO ILLUSTRATE TABLE 21.

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TABLE 21.—Numbers and **Percentages** of Males and Females at different Ages in collection from the West Bay (English Channel).

Age Group		I.	II.	III.	IV.	V.	VI. +	Total.
Year of Life		2.	3.	4.	5.	6.	7. +	
Males	Number	414	344	87	35	7	2	889
	Per cent.	57	55	42	38	23	10	—
Females	Number	313	280	122	56	23	20	814
	Per cent.	43	45	58	62	77	90	—

The connection between the advent of maturity and the decline in male preponderance would appear to be as follows :—*In each region, males are more numerous than females up to the age at which the majority of males become mature for the first time, after which, or soon after which, females begin to preponderate, the number of males diminishing somewhat rapidly.*

The reason for the *rapid* decline in the relative number of males after, or soon after, the average age at first maturity, as shown by the wide angle of divergence of the pairs of curves in Figs. 9 and 10 to the *right* of the crossing point, might be somewhat obscure, if *only* "natural" causes were at work. We know, however, that in the breeding season the catch of *ripe* males by trawlers greatly exceeds that of females on the spawning grounds, and it is possible, as Hefford* suggests, that this factor may be the cause of the *rapid* decline in the proportionate numbers of this sex after maturity is reached.

It is interesting to compare with Table 20 the German results† based on the determination of age and sex in 7,564 plaice from the South-Eastern part of the North Sea (neighbourhood of the Frisian Islands). These show a cessation of male preponderance as early as the fifth year (IV. Group) which accords well with Maier's‡ observation that the average age of males at first maturity in this region is four years (III. Group in winter), *i.e.*, about a year earlier than in the central and Northern parts of the North Sea.

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* Hefford, 1909, pp. 162–167, &c.
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‡ Maier, 1907, p. 99.

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TABLE I.—Length Measurements of FEMALE PLAICE of the I. Group (second year of life) in samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres. 4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	Totals.
29	The Wash	vi/06	—	1	32	378	348	133	26	8	6	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	934
31	Bridlington Bay	10/ix/06	5½–6	—	—	—	—	—	—	—	—	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
31[2]	„ „	10/ix/06	5–5½	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39[4]	Leman Ground	14/iii/06	16–16½	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	3
39[5]	„ „	15/iii/06	15–16	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
39[6]	„ „	16/iii/06	14–16	—	—	—	—	—	—	—	—	1	—	2	1	4	—	—	—	—	—	1	—	—	—	—	—	—	—	9
39[7]	Along East side of Swarte Bank	16/iii/06	14–17	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	1	—	—	—	—	—	3
42[1]	Off Haak's Light Vessel	13/v/06	13–15½	—	—	—	—	—	—	1	—	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
42[2]	„ „	13/v/06	12–13	—	—	—	—	1	2	6	7	6	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24
43	Leman Ground	9–12/vi/08	15–18	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
45[3]	Eastern Deep Water	7/iii/06	19–20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
46[1]	Brielle Ground	18/v/06	12–14½	—	—	—	—	—	—	1	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
46[2]	Between Brielle Ground and Eastern Deep Water	18/v/06	14½–15	—	—	—	—	—	—	—	1	1	1	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
50	Schouwen Ground	2/xii/07	15–17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	1	—	—	—	—	—	—	—	—	4
51	Gabbard Deep Water	15/i/08	23–25	—	—	—	—	—	—	—	—	—	—	—	—	1	4	3	2	2	1	—	—	—	—	—	—	—	—	13
52	Schouwen Ground	29/iv/08	15–17	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
53[1]	Great West Bay : "Spion Kop" Ground	12/ii/06	26–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	1	—	3
53[2]	„ „ „ Beer Head—Berry Head	27/ii/06	20–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
54[1]	„ „ „ Inside "Eastern Scruff"	28/ii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	2
54[2]	„ „ „ „ „ „	1/iii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
54[3]	„ „ „ „ „ „	1/iii/07	26–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
54[4]	„ „ „ „ „ „	1/iii/07	19–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	1	—	—	—	3
55[1]	„ „ „ Teignmouth Bay	27/xi/07	3–4	—	—	—	—	—	—	—	—	—	2	3	5	3	3	1	—	—	1	—	—	—	—	—	—	—	—	18
55[2]	„ „ „ „ „	27/xi/07	4–4½	—	—	—	—	—	—	—	—	—	—	3	6	6	—	1	1	—	—	1	—	1	—	—	—	—	—	19
55[3]	„ „ „ „ „	28/xi/07	5½–6	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	2	3	4	7	1	1	5	2	—	1	—	28
56	„ „ „ „ „	27–28/xi/08	3½–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	3	3	2	—	2	—	—	—	13
57[1]	„ „ „ Tor Bay	6/viii/09	7–7	—	—	—	—	—	—	—	—	—	—	2	12	18	13	11	14	8	3	1	1	—	—	—	—	—	—	83
57[2]	„ „ „ „	6/viii/09	6–7	—	—	—	—	—	—	—	—	—	—	—	1	4	2	6	5	—	1	2	1	—	—	—	—	—	—	22
57[3]	„ „ „ „	6/viii/09	3–5	—	—	—	—	—	—	—	—	—	—	—	—	2	1	6	—	3	1	—	1	—	—	1	—	—	—	15
57[4]	„ „ „ „	7/viii/09	5–7	—	—	—	—	—	—	—	—	—	—	4	5	6	11	15	12	11	—	2	—	—	—	—	—	—	—	66
58[1]	„ „ „ Start Bay	9/viii/09	7–13	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	—	—	—	3
58[2]	„ „ „ „	9/viii/09	7–8	—	—	—	—	—	—	—	—	—	—	—	—	1	5	5	—	2	—	—	—	—	—	—	—	—	—	13
58[3]	„ „ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	1	—	—	1	—	—	—	—	—	4
58[4]	„ „ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	3	1	1	—	—	—	—	—	—	—	8

TABLE Ia.—Length Measurements of MALE PLAICE of the I. Group (second year of life) in Samples collected during the period 1906–09.

N.B.—New Age-groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.)	Centimetres. 7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	7.	28.	Totals
32^{5}	Flamborough Off	28/iii/06	24–30	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39^{2}	East of South end of Well Bank	14/iii/06	$18\frac{1}{2}$–21	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
39^{4}	Leman Ground	14/iii/06	16–$16\frac{1}{2}$	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39^{5}	„ „	15/iii/06	15–16	—	—	—	—	—	—	—	1	2	2	—	—	—	—	—	—	—	—	—	—	—	—	5
39^{6}	„ „	16/iii/06	14–16	—	—	—	—	—	—	—	—	—	1	—	4	1	—	—	—	—	—	—	—	—	—	6
39^{7}	Along E. side of Swart Bank	16/iii/06	14–17	—	—	—	—	—	—	—	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	3
40^{1}	Between Broken and Swart Banks	10/v/06	17	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
40^{3}	Leman Ground	11/v/06	13–15	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
42^{1}	Off Haaks Light Vessel	13/v/06	13–$15\frac{1}{2}$	—	—	—	2	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
42^{2}	„ „	13/v/06	12–13	—	1	9	13	12	4	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	43
45^{1}	Eastern Deep Water	6/iii/06	23–24	—	—	—	—	—	—	—	—	1	1	—	—	2	—	—	—	—	—	—	—	—	—	4
45^{3}	„ „	7/iii/06	$18\frac{1}{2}$–23	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
45^{6}	Between Middle and Winterton Shoals	11/iii/06	22–25	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	2
46^{1}	Brielle Ground	18/v/06	12–$14\frac{1}{2}$	—	—	1	1	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
46^{2}	Between Brielle Ground and Eastern Deep Water	18/v/06	$14\frac{1}{2}$–15	—	—	—	—	2	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
47	South of Brown Ridges	18/v/06	15–19	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
50	Schouwen Ground	2/xii/07	15–17	—	—	—	—	—	—	—	—	—	—	—	5	1	2	—	—	—	—	—	—	—	—	8
51	Gabbard Deep Water	15/i/08	23–25	—	—	—	—	—	—	—	1	11	21	29	10	14	7	2	1	1	—	—	—	—	—	97
52	Schouwen Ground	29/iv/08	15–17	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
53^{1}	Great West Bay: "Spion Kop" Ground	12/ii/06	26–28	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	2
53^{2}	„ „ Between Beer Head and Berry Head	27/ii/06	20–29	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	2	3	2	2	—	1	1	13
54^{2}	„ „ Inside "Eastern Scruff"	1/iii/07	21–30	—	—	—	—	—	—	—	—	—	—	1	1	1	—	1	—	2	—	—	—	—	—	6
54^{3}	„ „ „ „ „	1/iii/07	26–30	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	2
55^{1}	„ „ Teignmouth Bay	27/xi/07	3–4	—	—	—	—	—	—	—	1	5	5	1	1	—	—	—	—	—	—	—	—	—	—	13
55^{2}	„ „ „ „	27/xi/07	4–$4\frac{1}{2}$	—	—	—	—	—	—	3	1	3	2	3	2	—	—	—	—	—	—	—	—	—	—	14
55^{3}	„ „ „ „	28/xi/07	$5\frac{1}{2}$–6	—	—	—	—	—	—	—	—	1	1	1	2	4	4	4	4	3	4	3	2	—	1	34
56	„ „ „ „	27–28/xi/08	$3\frac{1}{2}$–$4\frac{1}{2}$	—	—	—	—	—	—	—	—	1	—	—	—	1	1	3	3	4	2	1	—	—	—	16
57^{1}	„ „ Tor Bay	6/viii/09	7	—	—	—	—	—	1	—	9	8	15	26	20	17	14	10	2	1	—	—	—	—	—	123
57^{2}	„ „ „	6/viii/09	6–7	—	—	—	—	—	—	—	—	1	5	8	10	5	6	4	—	—	—	—	—	—	—	39
57^{3}	„ „ „	6/viii/09	3–5	—	—	—	—	—	—	—	1	—	1	4	4	5	—	4	1	—	—	—	—	—	—	20
57^{4}	„ „ „	7/viii/09	5–7	—	—	—	—	—	—	—	2	8	13	14	19	11	9	2	1	1	1	—	—	—	—	81
58^{1}	„ „ Start Bay	9/viii/09	7–13	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	2
58^{2}	„ „ „	9/viii/09	7–8	—	—	—	—	—	1	—	—	1	4	3	7	5	—	—	—	—	—	—	—	—	—	21
58^{3}	„ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	1	—	—	—	—	—	4
58^{4}	„ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	2	1	1	—	1	2	—	—	—	—	—	7

TABLE II.—Length Measurements of FEMALE PLAICE of the II. Group (third year of life) in Samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth. (fms.)	Centimetres. 6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36	37.	Totals.
29	The Wash	vi/06	—	17	56	83	64	79	74	87	94	44	15	7	11	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632
30	Bridlington Bay	26/vi/06	10½–10½	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
31[1]	„ „	10/ix/06	5½–6	—	—	—	—	—	—	3	—	3	14	15	7	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	44
31[2]	„ „	10/ix/06	5–5½	—	—	—	—	—	—	—	—	3	4	1	5	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15
31[3]	„ „	11/ix/06	6	—	—	—	—	—	—	—	1	1	3	1	6	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14
32[1]	Flamborough Off Ground	22/iii/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	2
32[2]	„ „	23/iii/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
32[4]	„ „	23/iii/06	29	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
32[5]	„ „	28/iii/06	24–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
33[8]	„ „	22/x/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
37[2]	Horn Reef Outer Ground	25/ix/06	23–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
37[3]	„ „	26/ix/06	21–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
39[2]	East of South end of Well Bank ...	14/iii/06	18½–21	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
39[3]	Between South ends of Well and Swarte Banks.	—	16½–19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
39[4]	Leman Ground	—	16–16½	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39[5]	„ „	15/iii/06	15–16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	1	1	2	—	1	—	—	—	—	—	—	—	—	—	—	8
39[6]	„ „	16/iii/06	14–16	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	2	—	2	1	4	—	1	1	—	—	—	—	—	—	—	—	—	—	14
39[7]	Along East side of Swarte Bank ...	16/iii/06	14–17	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	1	2	—	2	2	2	3	—	—	—	—	—	—	—	—	—	—	14
39[8]	North-East of Smith's Knoll Light Vessel	17/iii/06	22–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
40[1]	Between Broken and Swarte Banks ...	10/v/06	17	—	—	—	—	—	1	—	1	—	2	—	—	1	1	2	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10
40[2]	Leman Ground	11/v/06	13–17	—	—	—	—	—	—	—	—	3	1	—	—	1	1	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
40[3]	„ „	11/v/06	13–15	—	—	—	2	—	4	4	2	8	8	12	7	4	4	3	3	1	3	—	3	1	—	—	—	—	—	—	—	—	—	—	—	69
40[5]	Between Leman Ground and middle of Brown Ridges.	11/v/06	17	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
41[1]	Brown Bank Ground	12/v/06	16½–17	—	—	—	—	—	—	—	—	3	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
41[2]	„ „	12/v/06	15½–16½	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
41[3]	„ „	12/v/06	15½–16½	—	—	—	—	—	—	—	1	4	4	1	—	2	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14
41[4]	Off Haak's Light Vessel	13/v/06	15½–16½	—	—	—	—	—	—	1	2	2	6	4	1	—	3	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21
42[1]	„ „ „	13/v/06	13–15½	—	—	—	—	3	6	12	23	21	17	6	6	7	7	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	109
42[2]	„ „ „	13/v/06	12–13	—	—	—	2	11	50	62	87	77	37	33	22	11	7	7	5	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	413
43	Leman Ground	9–12/vi/08	15–18	—	—	—	—	—	—	—	1	8	7	6	7	8	8	9	4	1	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	62
44	„ „	22–24/viii/08	15–17	—	—	—	—	—	—	—	—	—	—	1	—	4	12	18	23	19	24	22	7	1	—	1	—	—	—	—	—	—	—	—	—	—	132

TABLE II.—*continued.*

Sample No.	Name of Fishing Ground.	Date.	Depth. (fms.)	Centimetres. 6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	Totals.
45[1]	Eastern Deep Water	6/iii/06	23–24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	2	1	—	—	—	—	—	—	—	—	—	—	5
45[2]	„ „	7/iii/06	18½–23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	1	—	—	—	—	—	—	—	—	4
45[3]	„ „	7/iii/06	19–20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
45[4]	„ „	7/iii/06	18½–20	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	2	—	1	—	—	—	—	—	1	—	—	—	—	—	—	6
46[1]	Brielle Ground	18/v/06	12–14½	—	—	—	1	1	3	7	8	9	16	12	7	16	10	7	5	4	1	2	1	—	—	—	—	—	—	—	—	—	—	—	—	110
46[2]	Between Brielle Ground and Eastern Deep Water.	18/v/06	14½–15	—	—	—	—	—	2	4	8	14	12	9	16	15	9	12	12	12	2	4	1	—	—	—	—	—	—	—	—	—	—	—	—	132
47	South of Brown Ridges	18/v/06	15–19	—	—	—	—	—	—	—	2	—	—	1	1	1	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	8
48[1]	Edge of Eastern Deep Water	18/v/06	19–20	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
48[2]	Eastern Deep Water	19/v/06	20–23	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
50	Schouwen Ground	2/xii/07	15–17	—	—	—	—	—	—	—	—	—	—	—	—	2	5	6	11	17	21	5	2	1	—	—	—	—	—	—	—	—	—	—	—	70
51	Gabbard Deep Water	15/i/08	23–25	—	—	—	—	—	—	—	—	—	—	—	—	1	1	4	4	1	5	6	7	4	3	2	—	—	—	—	—	—	—	—	—	38
52	Schouwen Ground	29/iv/09	15–17	—	—	—	—	—	—	2	3	15	10	15	11	6	5	3	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	72
53[1]	Great West Bay : "Spion Kop" Ground	12/ii/06	26–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	2	1	1	—	—	—	—	—	—	5
53[2]	„ „ Beer Head—Berry Head.	27/ii/06	20–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	—	1	—	2	2	—	2	—	1	—	—	1	12
54[1]	„ „ Inside "Eastern Scruff."	28/ii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	2	—	—	1	—	1	1	—	—	—	8
54[2]	„ „ „ „ „	1/iii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1	1	4	2	—	—	1	—	1	—	—	—	—	—	—	13
54[3]	„ „ „ „ „	1/iii/07	26–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	1	—	—	—	—	—	—	1	1	—	—	—	—	—	6
55[1]	„ „ Teignmouth Bay ...	27/xi/07	3–4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
55[2]	„ „ „ „ ...	27/xi/07	4–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
55[3]	„ „ „ „ ...	28/xi/07	5½–6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	1	2	2	3	6	3	1	—	—	1	1	—	—	22
56	„ „ „ „ ...	27–28/xi/08	3½–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	6	8	15	28	21	20	17	11	6	3	1	1	—	—	140
57[1]	„ „ Tor Bay	6/viii/09	7–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—	—	—	1	—	—	—	4
57[2]	„ „ „	6/viii/09	6–7	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	2
57[3]	„ „ „	6/viii/09	3–5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	—	—	—	—	—	3
57[4]	„ „ „	7/viii/09	5–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	1	2	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	11
58[1]	„ „ Start Bay	9/viii/09	7–13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	3
58[2]	„ „ „	9/viii/09	7–8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	2
58[3]	„ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—	—	—	—	—	—	3
58[4]	„ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	1	—	—	—	—	—	—	—	3

TABLE II.*a*.—Length Measurements of MALE PLAICE of the II. Group (third year of life) in samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres. 9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	Totals.
30	Bridlington Bay	26/vi/06	10¼–10½	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
31[1]	„ „	10/ix/06	5½–6	—	—	—	—	2	8	13	14	5	2	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	46
31[2]	„ „	10/ix/06	5–5½	—	—	—	—	1	3	4	3	3	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21
31[3]	„ „	11/ix/06	6	—	—	—	—	—	2	7	13	6	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29
32[1]	Flamborough Off Ground	22/iii/06	26–29	—	—	—	—	—	—	—	—	—	1	1	1	1	—	—	—	—	1	—	—	—	—	—	—	—	—	5
32[2]	„ „	23/iii/06	26	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
32[3]	„ „	23/iii/06	26–29	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	3
32[4]	„ „	23/iii/06	29	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
33[8]	„ „	22/x/06	26	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
35	„ „	18–22/viii/06	24–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
36[2]	Dogger Bank—South part	16/x/06	13–15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1
37[5]	Horn Reef Outer Ground	26/ix/06	23–24	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
39[1]	Off Smith's Knoll Light Vessel	14/iii/06	12–17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
39[2]	East of South end of Well Bank	14/iii/06	18½–21	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39[3]	Between South ends of Well and Swarte Banks... ...	14/iii/06	16½–19	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39[4]	Leman Ground	14/iii/06	16–16½	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
39[5]	„ „	15/iii/06	15–16	—	—	—	—	—	—	—	—	—	2	—	1	1	2	—	—	—	1	—	—	—	—	—	—	—	—	7
39[6]	„ „	16/iii/06	14–16	—	—	—	—	—	—	—	—	—	—	1	1	4	6	1	6	2	2	3	—	—	—	—	—	—	—	26
39[7]	Along East side of Swarte Bank	16/iii/06	14–17	—	—	—	—	—	—	—	—	2	—	2	3	2	—	2	—	3	—	1	1	—	—	—	—	—	—	16
39[8]	North-east of Smith's Knoll Light Vessel...	17/iii/06	22–25	—	—	—	—	—	—	—	—	—	1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	3
40[1]	Between Broken and Swarte Banks	10/v/06	17	—	1	—	—	—	—	—	1	—	2	1	—	2	—	—	1	—	—	—	—	—	—	—	—	—	—	8
40[2]	Leman Ground	11/v/06	13–17	—	—	—	—	—	—	—	2	—	—	2	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	6
40[3]	„ „	11/v/06	13–15	—	1	8	4	2	4	4	8	8	5	3	3	3	3	1	1	—	—	—	—	—	—	—	—	—	—	58
40[4]	„ „	11/v/06	15–17	—	—	—	—	—	1	—	1	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	4
40[5]	Between Leman Ground and middle of Brown Ridges...	11/v/06	17	—	—	1	2	1	2	4	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12
41[1]	Brown Bank Ground...	12/v/06	16½–17	—	—	—	1	1	3	1	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
41[2]	„ „	12/v/06	15½–16½	—	—	—	—	—	1	1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
41[3]	„ „	12/v/06	15½–16½	—	—	—	—	2	1	4	1	8	2	2	1	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	25
41[4]	Off Haak's Light Vessel	13/v/06	15½–16½	—	—	1	2	3	2	6	1	1	5	4	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28
42[1]	„ „ „	13/v/06	13–15½	—	—	7	26	31	41	47	14	14	5	2	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	190
42[2]	„ „ „	13/v/06	12–13	5	26	75	78	88	60	49	24	22	13	4	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	447
43	Leman Ground	9–12/vi/08	15–18	—	—	—	—	1	4	7	7	16	23	17	9	4	—	3	—	—	—	1	—	—	—	—	—	—	—	—	92
44	„ „	22–24/viii/08	15–17	—	—	—	—	—	—	—	—	—	4	20	25	49	36	13	6	7	1	—	1	—	—	—	—	—	—	—	162

TABLE II.*a*—*continued.*

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres. 9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	Totals.
45[1]	Eastern Deep Water	6/iii/06	23–24	—	—	—	—	—	—	—	1	—	2	2	—	2	1	—	—	—	—	1	—	—	—	—	—	—	—	—	9
45[2]	„ „	7/iii/06	18½–23	—	—	—	—	—	—	—	—	—	—	—	—	1	2	1	—	—	—	—	—	—	—	—	—	—	—	—	4
45[3]	„ „	7/iii/06	19–20	—	—	—	—	—	—	—	1	1	—	1	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	6
45[4]	„ „	7/iii/06	18½–20	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	2
45[5]	„ „	10/iii/06	23–25	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	2
45[6]	Between Middle and Winterton Shoals	11/iii/06	22–25	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
46[1]	Brielle Ground	18/v/06	12–14½	—	2	7	11	21	17	20	8	11	11	10	6	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	128
46[2]	Between Brielle Ground and Eastern Deep Water ...	18/v/06	14½–15	—	1	1	7	14	22	30	32	32	24	21	11	4	3	—	—	—	—	—	—	—	—	—	—	—	—	—	202
47	South of Brown Ridges	18/v/06	15–19	—	—	—	—	—	3	2	1	1	4	3	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	17
48[1]	Edge of Eastern Deep Water	18/v/06	19–20	—	—	—	—	1	—	1	—	1	2	1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	9
48[2]	Eastern Deep Water	19/v/06	20–23	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
49[2]	Off Sandette Light Vessel	29/xi/06	17–20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1	—	—	—	—	—	—	—	—	—	4
49[3]	„ „ „	29/xi/06	16–21	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
50	Schouwen Ground	2/xii/07	15–17	—	—	—	—	—	—	—	—	—	—	4	11	15	20	11	3	2	—	1	1	—	—	—	—	—	—	—	68
51	Gabbard Deep Water	15/i/08	23–25	—	—	—	—	—	—	1	4	14	17	42	42	34	45	18	10	7	2	2	—	1	—	1	—	—	—	—	240
52	Schowen Ground	29/iv/08	15–17	—	—	—	2	8	10	19	21	15	4	10	5	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	97
53[1]	Great West Bay: "Spion Kop" Ground	12/ii/06	26–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	2
53[2]	„ „ Beer Head—Berry Head	27/ii/06	20–29	—	—	—	—	—	—	—	—	—	—	1	—	2	2	3	1	—	4	4	—	1	3	—	1	1	—	1	24
54[1]	„ „ Inside "Eastern Scruff"	28/ii/07	21–30	—	—	—	—	—	—	—	—	1	—	1	—	2	—	—	3	1	1	—	—	—	—	—	—	—	—	—	9
54[2]	„ „ „ „ „	1/iii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	1	1	—	—	—	—	1	—	—	—	1	—	8
54[3]	„ „ „ „ „	1/iii/07	26–30	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	3
54[4]	„ „ „ „ „	1/iii/07	19–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
55[2]	„ „ Teignmouth Bay	27/xi/07	4–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	2	—	—	—	—	—	—	4
55[3]	„ „ „ „	28/xi/07	5½–6	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	1	1	—	—	3	2	1	—	2	1	—	14
56	„ „ „ „	27–28/xi/08	3½–4½	—	—	—	—	—	—	—	—	1	—	—	6	1	2	3	5	14	29	50	48	27	14	7	—	—	—	—	207
57[1]	„ „ Tor Bay	6/viii/09	7–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1	1	2	—	—	—	—	—	—	7
57[2]	„ „ „	6/viii/09	6–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	1	—	—	—	3
57[3]	„ „ „	6/viii/09	3–5	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
57[4]	„ „ „	7/viii/09	5–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	1	1	—	—	—	—	—	—	4
58[1]	„ „ Start Bay	9/viii/09	7–13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	2
58[2]	„ „ „	9/viii/09	7–8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	1	1	1	—	1	—	—	6
58[3]	„ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	2	—	1	—	—	—	6
58[4]	„ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1	1	1	1	—	—	—	—	—	7

TABLE III.—Length Measurements of FEMALE PLAICE of the III. Group (fourth year of life) in Samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date	Depth (fms.).	Centimetres. 10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38	39.	40.	41.	42	43.	Totals.
29	The Wash	vi/06	—	2	—	10	13	15	11	7	4	3	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	69
30	Bridlington Bay	26/vi/06	10¼–10½	—	—	—	—	—	—	—	—	5	1	3	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	11
31[1]	,, ,, ...	10/ix/06	5½–6	—	—	—	—	—	—	2	3	—	—	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10
31[2]	,, ,, ...	10/ix/06	5–5½	—	—	—	—	—	—	2	—	4	2	3	5	3	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20
31[3]	,, ,, ...	11/ix/06	6	—	—	—	—	—	—	2	1	1	4	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10
32[1]	Flamborough Off Ground ...	22/iii/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
32[3]	,, ,, ...	23/iii/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	1	—	1	—	—	—	—	—	4
32[5]	,, ,, ...	28/iii/06	24–30	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	2
33[1]	,, ,, ...	20/x/06	29–31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
33[2]	,, ,, ...	20/x/06	29–32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1
33[3]	,, ,, ...	21/x/06	32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
33[8]	,, ,, ...	22/x/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	5
34	,, ,, ...	2–5/vi/08	24–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
35	,, ,, ...	18–22/viii/08	24–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	3	1	1	2	1	—	—	—	—	—	—	—	—	—	11
36[1]	South-west Patch of Dogger Bank	16/x/06	10–15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
36[3]	Dogger Bank—South part ...	17/x/06	10–15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
37[1]	Horn Reef Outer Ground ...	25/ix/06	24–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	3
37[2]	,, ,, ...	25/ix/06	23–25	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	1	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
37[3]	,, ,, ...	26/ix/06	21–25	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	4	3	4	1	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	17
37[5]	,, ,, ...	26/ix/06	23–24	—	—	—	—	—	—	—	—	—	—	—	—	—	2	7	2	5	1	3	3	—	—	1	—	—	—	—	—	—	—	—	—	—	—	24
38[2]	Clay Deep, edge of Dogger ...	27/ix/06	17–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
39[1]	Off Smith's Knoll Light Vessel ...	14/iii/06	21–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39[4]	Leman Ground	14/iii/06	16–16½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
39[5]	,, ,, ...	15/iii/06	15–16	—	—	—	—	—	—	—	—	—	—	—	2	1	1	—	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
39[6]	,, ,, ...	16/iii/06	14–16	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	1	—	1	1	—	2	1	—	1	—	—	—	—	—	—	—	—	—	—	10
39[7]	Along East side of Swarte Bank	16/iii/06	14–17	—	—	—	—	—	—	—	—	—	2	1	—	1	1	1	4	1	2	1	1	—	—	1	1	—	—	—	—	—	—	—	—	—	—	17
39[8]	North-east of Smith's Knoll Light Vessel.	17/iii/06	22–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
40[1]	Between Broken and Swarte Banks.	10/v/06	17	—	—	—	—	—	—	—	—	1	3	4	4	2	2	2	2	2	2	4	1	3	—	—	—	—	—	—	—	—	—	—	—	—	—	32
40[2]	Leman Ground	11/v/06	13–17	—	—	—	—	—	—	—	1	—	1	2	2	2	2	3	6	—	2	1	1	3	1	—	—	—	—	—	—	—	—	—	—	—	—	27
40[3]	,, ,, ...	11/v/06	13–15	—	—	1	—	—	—	3	—	3	5	5	2	6	9	8	8	3	5	1	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	62
40[4]	,, ,, ...	11/v/06	15–17	—	—	—	—	—	—	—	—	2	—	1	—	2	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8

TABLE III—*continued.*

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres. 10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	42.	43.	Totals.
40[5]	Between Leman Ground and Middle of Brown Ridges.	11/v/06	17	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
41[1]	Brown Bank Ground	12/v/06	16½–17	—	—	—	—	1	1	—	—	—	—	1	—	1	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	6
41[2]	„ „	12/v/06	15½–16½	—	—	—	—	—	—	—	—	—	1	—	—	2	—	1	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	6
41[3]	„ „	12/v/06	15½–16½	—	—	—	—	—	1	1	—	1	1	3	1	3	3	6	5	3	3	2	2	2	1	—	—	—	—	—	—	—	—	—	—	—	38
41[4]	Off Haak's Light Vessel... ..	13/v/06	15½–16½	—	—	—	—	—	—	—	1	—	—	1	2	6	3	7	3	1	—	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	28
42[1]	„ „ „	13/v/06	13–15½	—	—	—	—	—	2	—	3	2	10	4	6	9	5	9	4	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	57
42[2]	„ „ „	13/v/06	12–13	—	—	1	1	—	6	13	13	9	20	18	9	19	7	8	7	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	135
43	Leman Ground	9–12/vi/08	15–18	—	—	—	—	—	—	—	—	1	—	1	5	7	7	10	10	13	7	2	2	1	1	—	—	—	—	—	—	—	—	—	—	—	67
44	„ „	22–24/viii/08	15–17	—	—	—	—	—	—	—	—	—	1	—	1	3	13	30	30	40	23	17	6	1	1	2	—	—	—	—	—	—	—	—	—	—	168
45[1]	Eastern Deep Water	6/iii/06	23–24	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	4
45[2]	„ „	7/iii/06	18½–23	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
45[3]	„ „	7/iii/06	19–20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
45[6]	Between Middle and Winterton Shoals.	11/iii/06	22–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
46[1]	Brielle Ground	18/v/06	12–14½	—	—	—	—	2	1	3	2	4	5	14	13	9	7	2	2	—	1	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	69
46[2]	Between Brielle Ground and Eastern Deep Water.	18/v/06	14½–15	—	—	—	1	—	—	1	7	8	11	14	11	13	11	15	9	13	2	4	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	121
47	South of Brown Ridges	18/v/06	15–19	—	—	—	—	—	—	—	—	1	—	—	1	1	2	2	1	3	3	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	15
48[1]	Edge of Eastern Deep Water ...	18/v/06	19–20	—	—	—	—	—	—	—	—	—	1	—	—	2	1	1	1	1	1	2	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	12
48[2]	Eastern Deep Water	19/v/06	20–23	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	1	—	—	1	—	1	—	—	—	—	—	—	—	—	—	5
49[1]	Off Sandette Light Vessel ...	29/v/06	20–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	1	1	1	—	—	—	—	—	—	—	—	—	6
49[2]	„ „ ...	29/v/06	17–20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
50	Schouwen Ground	2/xii/07	15–17	—	—	—	—	—	—	—	—	—	—	2	2	9	17	16	10	12	9	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	79
51	Gabbard Deep Water	15/i/08	23–25	—	—	—	—	—	—	—	—	—	—	1	5	2	11	23	26	24	8	9	6	6	2	1	2	1	—	—	—	—	—	—	—	—	—	127
52	Schouwen Ground	29/iv/08	15–17	—	—	—	—	—	—	1	—	3	4	4	7	3	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25
53[1]	Great West Bay : "Spion Kop" Ground.	12/ii/06	26–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	—	—	3	—	—	—	—	—	—	—	—	—	7
53[2]	„ „ „ Beer Head—Berry Head.	27/ii/06	20–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	2	1	—	1	—	—	—	—	1	—	—	—	—	—	6
54[1]	„ „ „ "Inside Eastern Scruff."	28/ii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	4
54[2]	„ „ „ „ „	1/iii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1	2	—	1	2	4	3	1	—	2	—	—	—	—	—	—	—	—	—	19
54[3]	„ „ „ „ „	1/iii/07	26–30	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	2	—	1	—	—	1	—	1	—	—	—	1	—	—	—	—	—	8
54[4]	„ „ „ „ „	1/iii/07	19–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

15360

55[2]	„ „ „ Teignmouth Bay.	27/xi/07	4–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
55[3]	„ „ „ „	28/xi/07	5½–6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	3	—	1	—	2	1	—	—	1	—	—	—	10
56	„ „ „ „	27–28/xi/08	3½–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	2	—	1	2	—	1	—	—	1	—	—	—	—	8
57[1]	„ „ „ Tor Bay ...	6/viii/09	7–7	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	1	1	—	—	1	—	—	—	5
57[3]	„ „ „ „ ...	6/viii/09	6–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
58[1]	„ „ „ Start Bay ...	9/viii/09	7–13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	—	—	3
58[2]	„ „ „ „ ...	9/viii/09	7–8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	2	1	—	—	—	—	—	—	—	—	5
58[3]	„ „ „ „ ...	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	2	2	1	—	1	—	1	—	—	—	—	—	9
58[4]	„ „ „ „ ...	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1	—	—	3	2	—	—	1	—	—	—	—	—	—	9

TABLE IIIa.—Length Measurements of MALE PLAICE of the III. Group (fourth year of life) in samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres. 12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31	32.	33.	34.	35.	36.	37.	38.	39,	40	41.	Totals.
30	Bridlington Bay	26/vi/06	10¼–10½	—	—	1	—	1	—	1	4	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	9
31[1]	„ „	10/ix/06	5½–6	—	—	—	—	3	2	8	3	3	3	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24
31[2]	„ „	10/ix/06	5–5½	—	—	—	—	—	1	1	4	—	4	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13
31[3]	„ „	11/ix/06	6	—	—	—	1	4	1	5	4	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20
32[1]	Flamborough off Ground	22/iii/06	26–29	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	2	—	—	—	—	—	—	—	—	5
32[2]	„ „	23/iii/06	26	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	1	1	1	1	—	—	—	—	—	—	6
32[3]	„ „	23/iii/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
32[5]	„ „	28/iii/06	24–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
33[2]	„ „	20/x/06	29–32	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
33[5]	„ „	21/x/06	29	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
33[6]	„ „	21/x/06	26–29	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	2
33[8]	„ „	22/x/06	26	—	—	—	—	—	—	—	—	1	—	—	—	—	1	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
34	„ „	2–5/vi/08	24–25	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
35	„ „	18–22/viii/08	24–28	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	1	1	—	—	1	—	—	—	—	—	—	—	5
36[3]	Dogger Bank	17/x/06	10–15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
37[1]	Horn Reef Outer	25/ix/06	24–25	—	—	—	—	—	—	—	—	—	—	—	—	1	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	4
37[2]	„ „ „	25/ix/06	23–25	—	—	—	—	—	—	—	—	—	—	—	1	—	1	2	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	7
37[3]	„ „ „	26/ix/06	21–25	—	—	—	—	—	—	—	—	—	—	—	1	5	4	2	4	1	2	—	—	—	—	—	—	—	—	—	—	—	—	19
37[5]	„ „ „	26/ix/06	23–24	—	—	—	—	—	—	—	—	—	—	2	5	7	4	6	4	—	1	—	—	—	—	—	—	—	—	—	—	—	—	29
38[1]	Clay Deep, edge of Dogger	27/ix/06	15–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	1	—	—	3
39[2]	East of South end of Well Bank	14/iii/06	18½–21	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

K

TABLE IIIa—*continued*.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres. 12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	Totals.
39[4]	Leman Ground	14/iii/06	16–16½	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39[5]	„ „	15/iii/06	15–16	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	3	1	1	—	1	—	—	—	—	—	—	—	—	—	9
39[6]	„ „	16/iii/06	14–16	—	—	—	—	—	—	—	—	—	1	1	4	2	1	4	1	2	2	2	2	1	—	1	—	—	—	—	—	—	—	24
39[7]	Along East side of Swarte Bank	16/iii/06	14–17	—	—	—	—	—	—	—	—	—	—	—	1	—	2	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	4
39[8]	North-east of Smith's Knoll	17/iii/06	22–25	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	2
40[1]	Between Broken Bank and Swarte Bank ...	10/v/06	17	1	—	—	1	—	1	2	4	3	4	2	3	2	—	4	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	29
40[2]	Leman Ground	11/v/06	13–17	—	—	—	—	—	—	2	—	1	—	6	3	3	3	3	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	23
40[3]	„ „	11/v/06	13–15	1	—	1	3	1	2	2	4	11	2	5	5	6	4	3	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	54
40[4]	„ „	11/v/06	15–17	—	—	—	—	—	—	1	1	2	—	2	3	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13
40[5]	Between Leman Ground and Middle of Brown Ridges.	11/v/06	17	1	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
41[1]	Brown Bank Ground	12/v/06	16½–17	—	—	—	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
41[2]	„ „ „	12/v/06	15½–16½	—	—	—	—	—	—	—	1	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
41[3]	„ „ „	12/v/06	15½–16½	—	—	—	1	—	—	2	2	3	3	8	6	3	8	2	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	41
41[4]	Off Haak's Light Vessel	13/v/06	15½–16½	—	—	—	1	—	4	3	5	5	5	6	3	3	4	3	1	2	1	—	1	—	—	—	—	—	—	—	—	—	—	47
42[1]	„ „	13/v/06	13–15½	—	—	—	1	1	8	7	4	13	16	8	11	6	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76
42[2]	„ „	13/v/06	12–13	—	—	2	5	8	15	22	22	21	15	14	2	5	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	132
43	Leman Ground	9–12/vi/08	15–18	—	—	—	—	2	1	6	9	4	16	13	13	12	18	8	3	3	3	—	1	1	—	—	—	—	—	—	—	—	—	113
44	„ „	22–24/vii/08	15–17	—	—	—	—	—	—	—	2	5	9	15	25	49	36	23	30	16	4	2	—	—	—	—	—	—	—	—	—	—	—	216
45[1]	Eastern Deep Water	6/iii/06	23–24	—	—	—	—	—	—	—	—	1	—	1	—	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	5
45[2]	„ „ „	7/iii/06	18½–23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	2
45[3]	„ „ „	7/iii/06	19–20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	1	—	—	—	—	—	—	3
45[4]	„ „ „	7/iii/06	18½–20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
45[5]	„ „ „	10/iii/06	23–25	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	1	1	—	—	—	1	1	—	1	—	—	—	—	—	—	7
45[6]	Between Middle and Winterton Shoals ...	11/iii/06	22–25	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
46[1]	Brielle Ground	18/v/06	12–14½	—	—	—	—	4	5	10	7	7	7	8	3	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	54
46[2]	Between Brielle Ground and Eastern Deep Water	18/v/06	14½–15	—	—	—	1	4	4	10	13	15	18	9	8	9	11	5	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	112
47	South of Brown Ridges	18/v/06	15–19	—	—	—	—	—	—	1	1	3	5	5	2	3	2	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	25
48[1]	Edge of Eastern Deep Water	18/v/06	19–20	—	—	—	—	1	—	—	3	—	—	5	6	2	3	—	2	1	—	2	—	—	—	—	—	—	—	—	—	—	—	25
48[2]	Eastern Deep Water	19/v/06	20–23	—	—	—	—	—	—	—	—	—	1	2	1	2	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	9
49[1]	Off Sandette Light Vessel	29/xi/06	20–22	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1	—	1	—	—	—	—	—	—	—	—	—	4
49[2]	„ „	29/xi/06	17–20	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	4
49[3]	„ „	29/xi/06	16–21	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
50	Schouwen Ground	2/xii/07	15–17	—	—	—	—	—	—	—	—	9	13	22	36	22	24	8	7	5	—	—	1	—	—	—	—	—	—	—	—	—	—	—	147
51	Gabbard Deep Water	15/i/08	23–25	—	—	—	—	1	—	2	12	22	30	47	49	52	35	39	21	36	9	7	7	6	1	—	—	—	—	—	—	—	—	—	376
52	Schouwen Ground	29/iv/08	15–17	—	—	—	—	1	—	2	3	5	1	3	2	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20
53[1]	Great West Bay: "Spion Kop" Ground ...	12/ii/06	26–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	2

53²	" " "	Beer Head—Berry Head ...	27/ii/06	20–29	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	—	—	1	—	1	2	—	3	1	1	—	—	—	—	—	12
54¹	" " "	Inside "Eastern Scruff" ...	28/ii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	1	1	—	—	—	1	—	—	—	—	5
54²	" " "	" " " ...	1/iii/07	21–30	—	—	—	—	—	—	—	—	—	—	1	1	1	—	—	—	1	—	1	2	—	1	—	—	—	—	—	—	—	—	8
54⁴	" " "	" " " ...	1/iii/07	19–26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
55¹	" " "	Teignmouth Bay	27/xi/07	3–4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
55²	" " "	" "	27/xi/07	4–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	2
55³	" " "	" "	27/xi/07	5½–6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	1	2	2	—	—	—	—	—	—	—	—	8
56	" " "	" "	27–28/xi/08	3½–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	2	—	3	1	2	4	1	3	2	1	—	—	—	—	—	20
57¹	" " "	Tor Bay	6/viii/09	7–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
57²	" " "	"	6/viii/09	6–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	2
57⁴	" " "	"	7/viii/09	5–7	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	3
58²	" " "	Start Bay	9/viii/09	7–8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	2
58³	" " "	"	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	1	—	—	—	—	—	4
58⁴	" " "	"	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	4	—	—	—	—	—	—	—	—	—	—	6

Table IV.—Length Measurement of Female Plaice of the IV. Group (fifth year of life) in samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres.																																			Totals.
				13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	42.	43.	44.	45.	46	47.	
29	Wash	vi/06	—	2	2	—	—	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
30	Bridlington Bay	26/vi/06	10¼–10½	—	—	—	—	—	—	1	—	3	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
31¹	" "	10/ix/06	5½–6	—	—	—	—	—	—	—	1	1	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
31²	" "	10/ix/06	5–5½	—	—	—	—	—	—	1	1	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
31³	" "	11/ix/06	6	—	—	—	—	—	—	1	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
32¹	Flamborough Off Ground —	22/iii/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	1	2	1	—	2	—	—	—	—	—	9
32²	" " " ...	23/iii/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	1	—	1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	6
32³	" " " ...	23/iii/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	5	2	2	5	2	5	3	4	1	1	—	—	—	—	32
32⁴	" " " ...	23/iii/06	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	1	—	—	—	—	—	—	3
32⁵	" " " ...	28/iii/06	24–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	3	1	—	—	—	—	—	—	—	—	—	5
33¹	" " " ...	20/x/06	29–31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
33²	" " " ...	20/x/06	29–32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2
33⁷	" " " ...	22/x/06	26–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1	1	—	—	—	—	—	—	—	—	—	5
33⁸	" " " ...	22/x/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
33⁹	" " " ...	22/x/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	4
33¹⁰	" " " ...	22/x/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	1	—	1	—	—	—	—	—	—	—	4
33¹³	" " " ...	23/x/06	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	1	—	—	—	—	—	—	3
34	" " " ...	2–5/vi/08	24–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	2	4	1	1	—	—	—	—	—	1	—	—	—	—	11

TABLE IV—*continued.*

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres. 13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38	39.	40.	41.	42.	43.	44.	45.	46.	47.	Totals.
35	Flamborough Off Ground ...	18–22/viii/08	24–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	5	10	10	10	12	10	2	4	1	—	—	—	—	—	—	—	—	—	68
36[1]	S.W. Patch of Dogger Bank...	16/x/06	10–15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
36[2]	Dogger Bank—South part ...	16/x/06	13–15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1
36[3]	,, ,, ,, ...	17/x/06	10–15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—	—	—	3
37[1]	Horn Reef Outer Ground ...	25/ix/06	24–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
37[2]	,, ,, ,, ...	25/ix/06	23–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
37[3]	,, ,, ,, ...	26/ix/06	21–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
37[5]	,, ,, ,, ...	26/ix/06	23–24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	3
38[1]	Clay Deep, edge of Dogger ...	27/ix/06	15–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	2
38[2]	,, ,, ,, ...	27/ix/06	17–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
39[4]	Leman Ground	14/iii/06	16–16½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
39[5]	,, ,, ...	15/iii/06	15–16	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	1	—	—	1	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	7
39[6]	,, ,, ...	16/iii/06	14–16	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	5
39[7]	Along East side of Swarte Bank.	16/iii/06	14–17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	4
39[8]	North-east of Smith's Knoll Light Vessel.	17/iii/06	22–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
40[1]	Between Broken and Swarte Banks.	10/v/06	17	—	—	—	—	—	—	—	—	1	1	—	—	6	3	2	—	1	5	6	1	2	2	1	—	—	—	—	—	—	—	—	—	—	—	—	31
40[2]	Leman Ground	11/v/06	13–17	—	—	—	—	—	—	—	—	—	—	—	—	—	1	4	4	2	3	2	1	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	19
40[3]	,, ,, ...	11/v/06	13–15	—	—	—	—	—	—	—	—	—	1	2	2	1	4	2	6	4	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25
40[4]	,, ,, ...	11/v/06	15–17	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	5
40[5]	Between Leman Ground and middle of Brown Ridges.	11/v/06	17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
41[1]	Brown Bank Ground	12/v/06	16½–17	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
41[2]	,, ,, ...	12/v/06	15½–16½	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	3
41[3]	,, ,, ...	12/v/06	15½–16½	—	—	—	—	—	—	—	—	—	—	—	—	2	1	4	3	3	3	3	4	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	26
41[4]	Off Haak's Light Vessel ...	13/v/06	15½–16½	—	—	—	—	—	—	—	—	1	—	—	1	2	2	3	5	4	3	1	1	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	27
42[1]	,, ,, ,, ...	13/v/06	13–15½	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	—	2	1	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11
42[2]	,, ,, ,, ...	13/v/06	12–13	—	—	—	—	1	—	—	—	1	2	—	5	—	1	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15
43	Leman Ground	9–12/vi/08	15–18	—	—	—	—	—	—	—	—	—	—	2	3	3	8	12	9	9	7	6	12	2	4	1	2	—	—	—	—	—	—	—	—	—	—	—	80
44	,, ,, ...	22–24/viii/08	15–17	—	—	—	—	—	—	—	—	—	—	1	3	6	11	7	12	9	8	5	6	1	1	4	—	—	1	—	—	—	—	—	—	—	—	—	75
45[1]	Eastern Deep Water	6/iii/06	23–24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
45[3]	,, ,, ...	7/iii/06	19–20	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
45[4]	,, ,, ...	7/iii/06	18½–20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
45[5]	,, ,, ...	10/iii/06	23–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
46[1]	Brielle Ground	18/v/06	12–14½	—	—	—	—	—	—	—	—	—	—	1	1	2	1	1	1	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9

46^2	Between Brielle Ground and Eastern Deep Water.	18/v/06	14½–15	—	—	—	—	—	—	—	—	—	1	1	1	4	4	3	2	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21
47	South of Brown Ridges ...	18/v/06	15–19	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	1	1	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
48^1	Edge of Eastern Deep Water.	18/v/06	19–20	—	—	—	—	—	—	—	—	—	—	1	—	1	—	4	—	2	1	5	6	5	—	—	—	—	1	—	—	—	—	—	—	—	—	—	26
48^2	Eastern Deep Water ...	19/v/06	20–23	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
49^1	Off Sandette Light Vessel ...	29/xi/06	20–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
49^3	„ „ „ ...	29/xi/06	16–21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
50	Schouwen Ground ...	2/xii/07	15–17	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
51	Gabbard Deep Water ...	15/i/08	23–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	4	1	2	2	1	—	1	1	—	1	—	—	—	—	—	—	—	—	—	14
52	Schouwen Ground ...	29/iv/08	15–17	—	—	—	—	—	—	—	—	—	—	2	2	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
53^1	Great West Bay: "Spion Kop" Ground.	12/ii/06	26–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	2
53^2	„ „ Beer Head–Berry Head.	27/ii/06	20–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	1	—	1	1	—	—	1	1	—	—	—	—	—	—	8
54^1	„ „ Inside "Eastern Scruff."	28/ii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
54^2	„ „ „ „	1/iii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
54^3	„ „ „ „	1/iii/07	26–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	3
55^2	„ „ Teignmouth Bay.	27/xi/07	4–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
55^3	„ „ „ „	28/xi/07	5½–6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
56	„ „ „ „	27–28/xi/08	3½–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	2	3	—	2	—	3	2	—	—	—	—	—	—	—	15
57^1	„ „ Tor Bay ...	6/viii/09	7–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
57^4	„ „ „ ...	7/viii/09	5–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	1	—	—	3
58^1	„ „ Start Bay ...	9/viii/09	7–13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	2
58^2	„ „ „ ...	9/viii/09	7–8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	2	—	—	—	—	—	—	—	—	—	4
58^3	„ „ „ ...	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	1	3
58^4	„ „ „ ...	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	4

TABLE IV.*a*.—Length Measurements of MALE PLAICE of the IV. Group (fifth year of life) in samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres.																											Totals.
				16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	42.	
30	Bridlington Bay	26/vi/06	10¼–10½	—	—	1	—	1	5	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
31^1	„ „	10/ix/06	5½–6	2	1	1	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
31^2	„ „	10/ix/06	5–5½	—	—	—	—	—	—	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
31^3	„ „	11/ix/06	6	—	—	1	1	4	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7

TABLE IV.*a*.—*continued*.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres. 16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	28.	39.	40.	41.	42.	Totals.
32[1]	Flamborough Off Ground	22/iii/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	1	—	—	—	—	—	3
32[2]	„ „	23/iii/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	2
32[3]	„ „	23/iii/06	26–29	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2	—	2	2	1	2	—	1	—	1	12
32[5]	„ „	28/iii/06	24–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
33[4]	„ „	21/x/06	29–32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
33[6]	„ „	21/x/06	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	1	—	—	—	3
33[7]	„ „	22/x/06	26–28	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—	—	—	—	4
33[8]	„ „	22/x/06	26	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	1	1	2	—	—	—	—	—	—	—	—	6
33[10]	„ „	22/x/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
33[11]	„ „	23/x/06	29–33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
33[12]	„ „	23/x/06	30–33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
34	„ „	2–5/vi/08	24–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	2	—	1	—	—	—	—	—	—	4
35	„ „	18–22/viii/08	24–28	—	—	—	—	—	—	—	—	—	—	1	—	1	2	4	12	7	6	2	2	—	—	—	—	—	—	—	37
37[1]	Horn Reef Outer Ground	25/ix/06	24–25	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
37[2]	„ „	25/ix/06	23–25	—	—	—	—	—	—	—	—	1	—	1	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	4
37[3]	„ „	26/ix/06	21–25	—	—	—	—	—	—	—	—	—	—	—	3	—	2	—	1	1	—	—	—	—	—	—	—	—	—	—	7
37[5]	„ „	26/ix/06	23–24	—	—	—	—	—	—	—	—	—	—	—	—	1	—	2	—	1	1	—	—	—	—	—	—	—	—	—	5
39[4]	Leman Ground	14/iii/06	16–16½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	2
39[5]	„ „	15/iii/06	15–16	—	—	—	—	—	—	—	—	1	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	3
39[6]	„ „	16/iii/06	14–16	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	2	—	—	—	—	—	—	—	—	—	—	—	4
39[7]	Along East side of Swarte Bank	16/iii/06	14–17	—	—	—	—	1	—	—	—	—	—	—	2	1	—	1	—	—	—	1	—	—	—	—	—	—	—	—	6
40[1]	Between Broken Bank and Swarte Bank	10/v/06	17	—	—	—	—	—	1	—	4	1	1	2	4	3	4	—	3	2	—	1	—	—	—	—	—	—	—	—	26
40[2]	Leman Ground	11/v/06	13–17	—	—	—	—	—	—	1	—	5	3	3	1	2	1	4	1	5	—	—	—	—	—	—	—	—	—	—	26
40[3]	„ „	11/v/06	13–15	—	—	—	1	1	2	1	4	7	2	4	4	4	3	3	2	2	1	—	—	—	—	—	—	—	—	—	41
40[4]	„ „	11/v/06	15–17	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	1	1	—	—	—	—	—	—	—	—	—	—	5
40[5]	Between Leman Ground and Middle of Brown Ridges	11/v/06	17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
41[2]	Brown Bank Ground	12/v/06	15½–17	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
41[3]	„ „	12/v/06	15½–16½	—	—	—	—	—	2	1	1	3	2	1	8	6	5	4	6	—	1	—	—	—	—	—	—	—	—	—	40
41[4]	Off Haak's Light Vessel	13/v/06	15½–16½	—	—	1	—	—	1	1	—	1	3	2	3	1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	16
42[1]	„ „	13/v/06	13–15½	—	—	—	—	1	2	—	—	1	—	3	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	9
42[2]	„ „	13/v/06	12–13	—	—	—	—	—	2	1	2	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
43	Leman Ground	9–12/vi/08	15–18	—	—	—	2	1	—	3	2	2	7	14	17	13	16	10	6	4	—	1	—	1	1	—	—	—	—	—	100
44	„ „	22–24/viii/08	15–17	—	—	—	—	—	—	2	5	2	16	15	21	19	14	9	4	1	—	1	—	—	—	—	—	—	—	—	109
45[1]	Eastern Deep Water	6/iii/06	23–24	—	—	—	—	—	—	—	—	—	—	1	1	—	—	1	1	—	1	2	—	1	1	—	—	—	—	—	9
45[2]	„ „	7/iii/06	18½–23	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	2
45[4]	„ „	7/iii/06	18½–20	—	—	—	—	—	—	—	—	—	—	—	1	1	—	1	—	—	—	1	1	—	—	—	—	—	—	—	5
45[5]	„ „	10/iii/06	23–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	2

45[6]	Between Middle and Winterton Shoals	11/iii/06	22–25	—	—	—	—	—	—	1	—	—	—	—	—	2	1	—	—	—	1	—	—	—	—	—	—	—	—	—	5
46[1]	Brielle Ground	18/v/06	12–14½	—	—	—	—	1	—	1	1	2	1	2	2	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	12
46[2]	Between Brielle Ground and Eastern Deep Water ...	18/v/06	14½–15	—	—	—	—	—	—	2	—	1	4	4	3	4	—	—	—	2	1	—	—	—	—	—	—	—	—	—	—	21
47	South of Brown Ridges	18/v/06	15–19	—	—	—	—	—	—	1	1	1	1	2	2	1	—	—	—	2	3	—	—	—	—	—	—	—	—	—	—	14
48[1]	Edge of Eastern Deep Water	18/v/06	19–20	—	—	—	—	1	—	—	—	1	2	4	4	2	3	4	2	3	—	—	—	—	—	—	—	—	—	—	—	26
48[2]	Eastern Deep Water	19/v/06	20–23	—	—	—	—	1	—	—	—	3	2	—	—	—	—	1	1	3	—	1	—	—	—	—	—	—	—	—	—	12
49[1]	Off Sandette Light Vessel	29/xi/06	20–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
49[2]	„ „	29/xi/06	17–20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
49[3]	„ „	29/xi/06	16–21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
50	Schouwen Ground	2/xii/07	15–17	—	—	—	—	—	—	1	1	3	7	4	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21
51	Gabbard Deep Water	15/i/08	23–25	—	—	—	—	2	—	3	1	6	8	7	23	3	8	6	7	5	2	1	5	1	1	1	1	—	—	—	—	91
52	Schouwen Ground	29/iv/08	15–17	—	—	—	1	1	3	8	2	1	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19
53[1]	Great West Bay : "Spion Kop" Ground...	12/ii/06	26–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	2
53[2]	„ „ Beer Head—Berry Head	27/ii/06	20–29	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	1	—	1	—	—	—	—	—	—	—	—	—	—	5
54[1]	„ „ Inside "Eastern Scruff"	28/ii/07	21–30	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	3
54[2]	„ „ „ „ „	1/iii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	2
55[2]	„ „ Teignmouth Bay	27/xi/07	4–4½	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
56	„ „ „ „	27–28/xi/08	3½–4½	—	—	—	—	—	—	—	—	—	—	—	2	—	2	1	—	3	2	2	—	—	—	—	—	—	—	—	—	12
57[2]	„ „ Tor Bay	6/viii/09	6–7	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
58[2]	„ „ Start Bay	9/viii/09	7–8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	3
58[4]	„ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	2

TABLE V.—Length Measurements of FEMALE PLAICE of the V. Group (sixth year of life) in Samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres.																												Totals.
				20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	42.	43.	44.	45.	46.	47.	48.	
32[1]	Flamborough Off Ground	22/iii/06	26–29	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	3
32[2]	„ „ „	23/iii/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	2
32[3]	„ „ „	23/iii/06	26–29	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	1	1	1	1	—	—	1	1	2	—	—	—	—	10
32[5]	„ „ „	28/iii/06	24–30	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	2
33[2]	„ „ „	20/x/06	29–32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
33[3]	„ „ „	21/x/06	32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
33[5]	„ „ „	21/x/06	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	1	—	—	—	—	—	—	—	—	3
33[6]	„ „ „	21/x/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	1	—	—	—	—	—	—	—	3
33[7]	„ „ „	22/x/06	26–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	—	—	—	—	—	—	—	3
33[9]	„ „ „	22/x/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	1	2	—	—	1	—	—	—	—	6
33[10]	„ „ „	22/x/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	2	—	1	—	—	—	—	—	4

TABLE V.—*continued.*

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres.																										Totals.
				20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	42.	43.	44.	45.	46.	47	48.	
33[11]	Flamborough Off Ground	23/x/06	29–33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
33[12]	„ „ „	23/x/06	30–33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	2
33[13]	„ „ „	23/x/06	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
34	„ „ „	2–5/vi/08	24–25	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	2	1	4	1	1	—	—	1	—	—	—	—	11
35	„ „ „	18–22/viii/08	24–28	—	—	—	—	—	—	—	—	—	—	—	—	2	—	3	3	2	6	3	2	2	2	—	—	—	—	—	—	25
36[2]	Dogger Bank—South part	16/x/06	13–15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
36[3]	„ „ „	17/x/06	10–15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	2
37[1]	Horn Reef Outer Ground	25/ix/06	24–25	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	3
37[2]	„ „ „	25/ix/06	23–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
37[3]	„ „ „	26/ix/06	21–25	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
37[5]	„ „ „	26/ix/06	23–24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	1	—	—	1	—	—	4
38[1]	Clay Deep, edge of Dogger	27/ix/06	15–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1
38[2]	„ „ „	27/ix/06	17–22	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39[1]	Off Smith's Knoll Light Vessel	14/iii/06	21–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39[4]	Leman Ground	14/iii/06	16–16½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
39[5]	„ „	15/iii/06	15–16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—	—	—	—	—	—	3
39[6]	„ „	16/iii/06	14–16	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	2
39[7]	Along East side of Swarte Bank	16/iii/06	14–17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
39[8]	North-east of Smith's Knoll Light Vessel ...	17/iii/06	22–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
40[1]	Between Broken and Swarte Banks	10/v/06	17	1	—	—	—	—	1	—	—	—	1	—	—	—	1	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	7
40[2]	Leman Ground	11/v/06	13–17	—	—	—	—	—	—	—	—	—	2	—	—	—	—	1	2	1	—	—	—	—	—	—	—	—	—	—	—	—	6
40[3]	„ „	11/v/06	13–15	—	—	—	—	—	—	—	—	1	2	1	—	1	2	1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	11
40[4]	„ „	11/v/06	15–17	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
40[5]	Between Leman Ground and Middle of Brown Ridges.	11/v/06	17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	1	—	—	—	—	—	—	3
41[1]	Brown Bank Ground	12/v/06	16½–17	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
41[2]	„ „	12/v/06	15½–16½	—	—	—	—	—	—	1	—	1	—	1	—	—	—	2	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	8
41[3]	„ „	12/v/06	15½–16½	—	—	—	—	—	—	—	2	1	2	—	1	2	1	2	—	2	1	1	—	—	—	—	—	—	—	—	—	—	—	15
41[4]	Off Haak's Light Vessel	13/v/06	15½–16½	—	—	—	—	—	—	—	—	—	1	—	1	2	3	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	9
42[1]	„ „	13/v/06	15–15½	—	—	—	1	—	—	—	1	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	4
43	Leman Ground	9–12/vi/08	15–18	—	—	—	—	—	—	—	—	—	1	—	4	3	4	1	4	—	1	—	3	—	—	—	—	—	—	—	—	—	—	21
44	„ „	22–24/viii/08	15–17	—	—	—	—	—	—	—	—	—	1	1	1	1	1	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	8
45[1]	Eastern Deep Water	6/iii/06	23–24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
46[1]	Brielle Ground	18/v/06	12–14½	—	—	—	—	—	—	1	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
46[2]	Between Brielle Ground and Eastern Deep Water	18/v/06	14½–15	—	—	—	1	—	1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
47	South of Brown Ridges	18/v/06	15–19	—	—	—	—	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
48[1]	Edge of Eastern Deep Water	18/v/06	19–20	—	—	—	—	—	—	—	—	1	—	2	4	1	2	3	3	2	—	1	—	—	—	—	—	—	—	—	—	—	—	19

48[2]	Eastern Deep Water	19/v/06	20–23	—	—	—	—	—	—	—	—	—	—	1	1	—	3	2	1	—	—	—	1	—	—	—	2	—	—	—	—	9
51	Gabbard Deep Water...	15/i/08	23–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	2	1	3	—	—	—	—	—	—	—	9
52	Schouwen Ground	29/iv/08	15–17	—	—	—	—	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
53[2]	Great West Bay : Beer Head—Berry Head ...	27/ii/06	20–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
54[2]	„ „ Inside "Eastern Scruff" ...	1/iii/07	26–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
55[1]	„ „ Teignmouth Bay	27/xi/07	3–4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
55[2]	„ „ „ „	27/xi/07	4–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	1	—	—	—	—	3
56	„ „ „ „	27–28/xi/08	3½–4½	—	—	—	—	—	—	—	—	—	1	—	1	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	4
57[3]	„ „ Tor Bay	6/viii/09	3–5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1
57[4]	„ „ „	7/viii/09	5–7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
58[1]	„ „ Start Bay...	9/viii/09	7–13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	2
58[2]	„ „ „	9/viii/09	7–8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	1	1	—	—	1	—	—	5
58[3]	„ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	2
58[4]	„ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	2

TABLE V.*a*.—Length Measurements of MALE PLAICE of the V. Group (sixth year of life) in samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth. (fms.).	Centimetres 18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	42.	43.	44.	Totals.
30	Bridlington Bay	26/vi/06	10¼–10½	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
31	„ „	10/ix/06	5½–6	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
32[1]	Flamborough Off Ground	22/iii/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	2
32[3]	„ „	23/iii/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
32[4]	„ „	23/iii/06	29	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
32[5]	„ „	28/iii/06	24–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
33[1]	„ „	20/x/06	29–31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
33[2]	„ „	20/x/06	29–32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	2
33[4]	„ „	20/x/06	29–32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
33[6]	„ „	20/x/06	26–29	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	2
33[7]	„ „	20/x/06	26–28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1	1	—	—	—	—	—	4
33[8]	„ „	20/x/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	2
33[9]	„ „	20/x/06	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	1	—	—	4
33[10]	„ „	20/x/06	26–29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1

TABLE V.*a.*—*continued.*

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Centimetres. 18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	42.	43.	44.	Totals.
34	Flamborough Off Ground	2–5/vi/08	24–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	1	—	—	—	—	3
35	„ „	18–22/viii/08	24–28	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	2	1	2	—	—	—	—	—	—	—	—	6
36[2]	Dogger Bank—South part	16/x/06	13–15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
38[1]	Clay Deep, edge of Dogger Bank	27/ix/06	15–22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	2
39[3]	Between South ends of Well and Swarte Banks	14/iii/06	16½–19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
39[5]	Leman Ground	15/iii/06	15–16	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	2
39[7]	Along East side of Swarte Bank	16/iii/06	14–17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1
39[8]	North-east of Smith's Knoll Light Vessel	17/iii/06	22–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
40[1]	Between Broken and Swarte Banks	10/v/06	17	—	—	—	—	—	—	1	2	1	1	1	1	1	3	1	1	1	1	—	—	—	—	—	—	—	—	15
40[2]	Leman Ground	11/v/06	13–17	—	—	—	—	—	—	—	1	—	2	—	—	—	2	1	—	—	1	—	1	1	—	—	—	—	—	9
40[3]	„	11/v/06	13–15	—	—	—	—	1	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	3
40[4]	„	11/v/06	15–17	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	—	—	2	—	—	—	—	—	—	—	—	5
41[2]	Brown Bank Ground	12/v/06	15½–16½	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	3	—	—	—	—	—	—	—	—	—	—	5
41[3]	„ „	12/v/06	15½–16½	—	—	—	—	1	—	1	1	—	—	1	2	3	4	2	1	—	—	—	—	—	—	—	—	—	—	16
41[4]	Off Haak's Light Vessel	13/v/06	15½–16½	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	2	—	—	1	—	1	—	—	—	—	—	5
43	Leman Ground	9–12/vi/08	15–18	—	—	—	—	—	1	—	—	1	—	2	3	—	3	4	1	1	3	—	—	—	—	—	—	—	—	19
44	„	22–24/viii/08	15–17	—	—	—	—	—	—	—	—	—	—	1	3	4	3	1	5	1	—	—	—	—	—	—	—	—	—	18
45[5]	Eastern Deep Water	10/iii/06	23–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
45[6]	Between Middle and Winterton Shoals	11/iii/06	22–25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
46[2]	Between Brielle Ground and Eastern Deep Water	18/v/06	12–14½	—	—	—	—	—	—	—	—	1	—	1	3	1	1	—	—	—	—	—	—	—	—	—	—	—	—	7
47	South of Brown Ridges	18/v/06	15–19	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
48[1]	Edge of Eastern Deep Water	18/v/06	19–20	—	—	—	—	—	—	1	—	1	—	2	2	4	4	3	4	3	2	1	—	—	—	—	—	—	—	27
48[2]	Eastern Deep Water	19/v/06	20–23	—	—	—	—	—	—	—	—	—	1	4	1	—	3	3	—	1	1	1	—	—	—	—	—	—	—	15
49[3]	Off Sandette Light Vessel	29/xi/06	16–21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
51	Gabbard Deep Water	15/i/08	23–25	—	—	—	—	—	1	—	—	—	1	2	2	6	2	7	4	4	4	3	1	2	—	3	—	—	—	42
52	Schouwen Ground	29/iv/08	15–17	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
54[2]	Great West Bay: Inside "Eastern Scruff"	1/iii/07	21–30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
56	„ „ Teignmouth Bay	27/xi/08	3½–4½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	1	—	—	—	—	—	3
58[2]	„ „ Start Bay	9/viii/09	7–8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	2
58[3]	„ „ „	9/viii/09	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1

TABLE VI.—Length Measurements of PLAICE of the VI. Group (seventh year of life) in Samples collected during the period 1906–09.
N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Sex.	Centimetres. 27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	42.	43.	44.	45.	46.	47.	48.	49.	50.	51.	52.	Totals.
30	Bridlington Bay	26/vi/06	10¼–10½	M.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
31	„ „	10/ix/06	5½–6	M.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
32[1]	Flamborough Off Ground	22/iii/06	26–29	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	2
32[2]	„ „	23/iii/06	26	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	2
32[3]	„ „	23/iii/06	26–29	F.	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	2	—	—	—	—	—	—	—	4
32[4]	„ „	23/iii/06	29	M.	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
32[5]	„ „	28/iii/06	24–30	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
33[2]	„ „	20/x/06	29–32	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
33[4]	„ „	21/x/06	29–32	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
33[5]	„ „	21/x/06	29	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
33[6]	„ „	21/x/06	26–29	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
33[7]	„ „	22/x/06	26–28	F.	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
33[8]	„ „	22/x/06	26	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	2
33[9]	„ „	22/x/06	26	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	2
33[10]	„ „	22/x/06	26–29	M.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	2
33[11]	„ „	23/x/06	29–33	M.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
33[14]	„ „	23/x/06	33–37	M.	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
34	„ „	2–5/vi/08	24–25	M.	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
35	„ „	18–22/viii/08	24–28	M.	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
				F.	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	1	1	—	—	—	—	—	—	—	2	4
36[3]	Dogger Bank—South part	17/x/06	10–15	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	2	3
37[1]	Horn Reef Outer Ground	25/ix/06	24–25	M.	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	2
37[2]	„ „	25/ix/06	23–25	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
37[4]	„ „	26/ix/06	22–23	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
37[5]	„ „	26/ix/06	23–24	M.	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
38[2]	Clay Deep, edge of the Dogger	27/ix/06	15–22	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	2
40[1]	Between Broken Bank and Swarte Bank	10/v/06	17	M.	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
				F.	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
40[2]	Leman Ground	11/v/06	13–17	M.	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
40[3]	„ „	11/v/06	13–15	M.	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

TABLE VI.—*continued.*

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Sex.	Centimetres. 27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	42.	43.	44.	45.	46.	47.	48.	49.	50.	51.	52.	Totals.
40[4]	Leman Ground	11/v/06	15–17	F.	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
40[5]	Between Leman Ground and middle of Brown Ridges	11/v/06	17	F.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
41[1]	Brown Bank Ground	12/v/06	16½–17	F.	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	2
41[2]	„ „	12/v/06	15½–16½	F.	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
41[3]	„ „	12/v/06	15½–16½	M.	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
				F.	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
41[4]	Off Haak's Light Vessel	13/v/06	15½–16½	M.	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
43	Leman Ground	9–12/vi/08	15–18	M.	—	—	—	—	1	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
				F.	—	—	—	1	—	—	—	—	1	1	1	3	—	2	—	—	—	—	—	—	—	—	—	—	—	9
44	„ „	22–24/viii/08	15–17	M.	—	—	—	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
				F.	—	—	—	—	1	—	—	—	1	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	4
45[5]	Eastern Deep Water	10/iii/06	23–25	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	2
48[1]	Edge of Eastern Deep Water	18/v/06	19–20	M.	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
48[2]	Eastern Deep Water	19/v/06	20–23	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
49[1]	Off Sandette Light Vessel	29/xi/06	20–22	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
51	Gabbard Deep Water	15/i/08	23–25	M.	—	3	—	—	1	2	2	2	4	3	2	1	1	1	1	—	—	—	—	—	—	—	—	—	—	23
				F.	1	—	—	—	—	—	—	—	—	—	2	1	—	1	1	1	1	1	1	—	1	—	—	—	—	—	11
53[2]	Great West Bay: Beer Head—Berry Head	27/ii/06	20–29	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
54[1]	„ „ Inside "Eastern Scruff"	28/ii/07	21–30	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
54[2]	„ „ „ „ „	1/iii/07	21–30	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	2
54[3]	„ „ „ „ „	1/iii/07	26–30	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
56	„ „ Teignmouth Bay	27–28/xi/08	3½–4½	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
58[2]	„ „ Start Bay	9/viii/09	7–8	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	—	—	—	—	—	—	—	3

Table VII.—Length Measurements of Plaice of the VII. Group (eighth year of life) in samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Date (fms.).	Sex.	Centimetres. 24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38	39.	40.	41.	42.	43.	44.	45.	46.	47.	48.	49.	50	51.	52.	53.	54.	55.	56	Totals.
30	Bridlington Bay	26/vi/06	10¼–10½	M.	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
				F.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
32[2]	Flamborough Off Ground ...	23/iii/06	26	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1

32[3]	„ „ „ ...	23/iii/06	26–29	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
33[1]	„ „ „ ...	20/x/06	29–31	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
33[3]	„ „ „ ...	21/x/06	32	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
33[4]	„ „ „ ...	21/x/06	29–32	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
33[8]	„ „ „ ...	22/x/06	26	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	2
33[9]	„ „ „ ...	22/x/06	26	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
33[10]	„ „ „ ...	22/x/06	26–29	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	2
33[11]	„ „ „ ...	23/x/06	29–33	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
33[12]	„ „ „ ...	23/x/06	30–33	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	2
34	„ „ „ ...	2–5/vi/08	24–25	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
35	„ „ „ ...	18–22/viii/08	24–28	M.	—	—	—	—	—	—	—	—	—	—	—	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
36[2]	Dogger Bank—South part ...	17/x/06	10–15	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
37[1]	Horn Reef Outer Ground ...	25/ix/06	24–25	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	2
37[4]	„ „ „ ...	26/ix/06	22–23	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
38[2]	Clay Deep, edge of Dogger ...	27/ix/06	17–22	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
40[4]	Leman Ground	11/v/06	15–17	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
41[1]	Brown Bank Ground... ...	12/v/06	16½–17	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
41[3]	„ „	12/v/06	15½–16½	F.	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
43	Leman Ground	9–12/vi/08	15–18	M.	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
44	„ „	22–24/viii/08	15–17	M.	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	5
45[5]	Eastern Deep Water	10/iii/06	23–25	M.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
49[2]	Off Sandette Light Vessel ...	29/xi/06	17–20	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
51	Gabbard Deep Water	15/i/08	23–25	M.	—	—	—	—	—	—	—	—	1	—	—	1	—	2	—	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	7
				F.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	5
54[3]	Great West Bay: "Inside Eastern Scruff."	1/iii/07	26–30	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
57[4]	„ „ Tor Bay ...	7/viii/09	5–7	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
58[2]	„ „ Start Bay ...	9/viii/09	7–8	M.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1
58[3]	„ „ „ ...	9/viii/09	8	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

TABLE VIII.—Length Measurements of PLAICE of the VIII. Group (ninth year of life) in samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Sex.	Centimetres. 34.	35.	36.	37.	38.	39.	40.	41.	42.	43.	44.	45.	46.	47.	48.	49.	50.	51.	52.	53.	54.	Totals.
33[4]	Flamborough Off Ground	21/x/06	29–32	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
33[9]	„ „	22/x/06	26	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	2
33[13]	„ „	23/x/06	30	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	2
33[14]	„ „	23/x/06	33–37	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
34	„ „	2–5/vi/08	24–25	F.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	2
35	„ „	18–22/viii/08	24–28	M.	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
				F.	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	2
36[3]	Dogger Bank—South part	17/x/06	10–15	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	—	—	—	3
38[1]	Clay Deep, edge of Dogger	27/ix/06	15–22	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
40[4]	Leman Ground	11/v/06	15–17	M.	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
43	„ „	9–12/vi/08	15–18	F.	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
44	„ „	22–24/viii/08	15–17	M.	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
				F.	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
45[3]	Eastern Deep Water	7/iii/06	19–20	F.	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
51	Gabbard Deep Water	15/i/05	23–25	M.	—	—	—	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	2	—	1	4
58[2]	Start Bay	9/viii/09	7–8	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1

TABLE IX.—Length Measurements of PLAICE of the IX.+ Groups combined (tenth and subsequent years of life) in Samples collected during the period 1906–09.

N.B.—New Age Groups are taken to start from the beginning of April.

Sample No.	Name of Fishing Ground.	Date.	Depth (fms.).	Sex.	Centimetres. 34.	35.	36.	37.	38.	39.	40.	41.	42.	43.	44.	45.	46.	47.	48.	49.	50.	51.	52.	53.	54.	55.	56.	57.	58.	59.	60.	61.	62.	63.	64.	65.	66.	Totals.
32[2]	Flamborough Off Ground	23/iii/06	26	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
32[3]	„ „ „	23/iii/06	26–29	F.	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
33[1]	„ „ „	20/x/06	29–31	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1

33[2]	„ „ „ ...	20/x/06	29–32	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2
33[3]	„ „ „ ...	21/x/06	32	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
33[4]	„ „ „ ...	21/x/06	29–32	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	3
33[5]	„ „ „ ...	21/x/06	29	F.	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	1	—	—	1	—	—	—	—	—	—	—	—	4
33[6]	„ „ „ ...	21/x/06	26–29	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
33[8]	„ „ „ ...	22/x/06	26	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
33[10]	„ „ „ ...	22/x/06	26–29	F.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
33[12]	„ „ „ ...	23/x/06	30–33	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
33[13]	„ „ „ ...	23/x/06	30	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	2
34	„ „ „ ...	2–5/vi/08	24–25	F.	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
36[1]	Dogger Bank—South part ...	16/x/06	10–15	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
36[2]	„ „ „ ...	16/x/06	13–15	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
36[3]	„ „ „ ...	17/x/06	10–15	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	2	—	1	—	1	1	—	—	7
37[2]	Horn Reef Outer Ground ...	25/x/06	23–25	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
37[3]	„ „ „ ...	26/x/06	21–25	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
38[1]	Clay Deep, edge of Dogger ...	27/x/06	15–22	F.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
39[6]	Leman Ground	16/iii/06	14–16	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	2
39[7]	Along East side of Swarte Bank	16/iii/06	14–17	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
39[8]	North-east of Smith's Knoll Light Vessel.	17/iii/06	22–25	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
40[2]	Leman Ground	11/v/06	13–17	F.	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
41[1]	Brown Bank Ground	12/v/06	16½–17	F.	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
41[2]	„ „	12/v/06	15½–16½	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
43	Leman Ground	9–12/vi/08	15–18	M.	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
44	„ „	22–24/viii/08	15–17	M.	—	1	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
				F.	—	—	—	—	—	1	—	—	—	—	1	—	1	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
45[5]	Eastern Deep Water	10/iii/06	23–25	F.	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
51	Gabbard Deep Water	15/i/08	23–25	M.	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
				F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	1	—	—	1	—	—	—	—	—	1	—	—	—	—	6
53[1]	Great West Bay: "Spion Kop" Ground.	12/ii/06	26–28	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
53[2]	„ „ Beer Head—Berry Head.	27/ii/06	20–29	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
58[1]	„ „ Start Bay ...	9/viii/09	7–13	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
58[2]	„ „ „ ...	9/viii/09	7–8	F.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

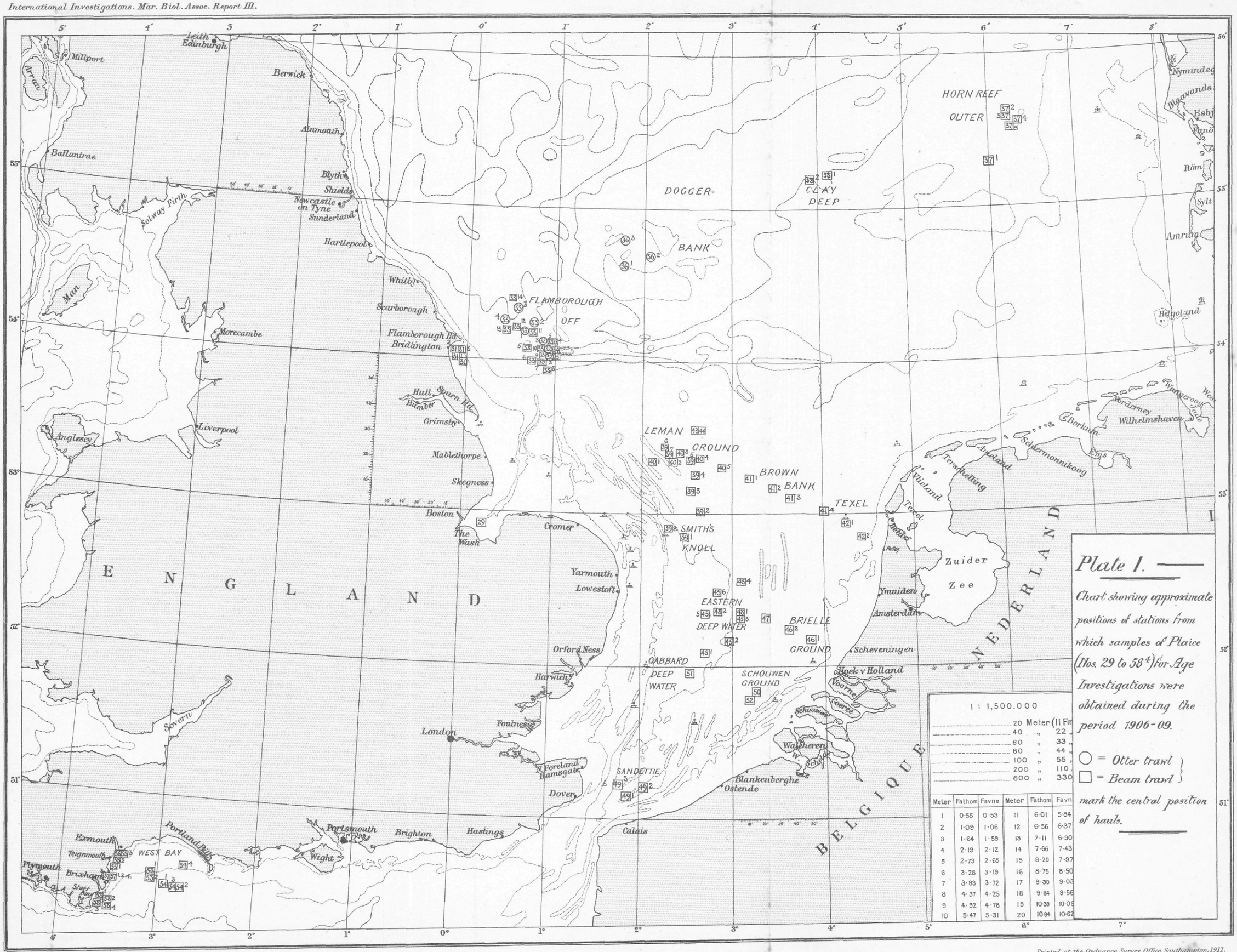

Plate I.

Chart showing approximate positions of stations from which samples of Plaice (Nos. 29 to 58⁴) for Age Investigations were obtained during the period 1906-09.

○ = Otter trawl
□ = Beam trawl
mark the central position of hauls.

1 : 1,500.000

20 Meter	(11 Fm	
40 „	22 „	
60 „	33 „	
80 „	44 „	
100 „	55 „	
200 „	110 „	
600 „	330 „	

Meter	Fathom	Favne	Meter	Fathom	Favn
1	0·55	0·53	11	6·01	5·84
2	1·09	1·06	12	6·56	6·37
3	1·64	1·59	13	7·11	6·90
4	2·19	2·12	14	7·66	7·43
5	2·73	2·65	15	8·20	7·97
6	3·28	3·19	16	8·75	8·50
7	3·83	3·72	17	9·30	9·03
8	4·37	4·25	18	9·84	9·56
9	4·92	4·78	19	10·39	10·09
10	5·47	5·31	20	10·94	10·62

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