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Investigations on the Length, Weight, Sex and Yield of the commercial Fish caught in August-September 1961 on the NE Slope of the Grand Bank

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1. The vessel

The investigations were carried out on the factory-trawler "Kastor", 2879 BRT, engine power 2400 HP.

2. Fishing period

The fishing was carried out from 1 August till 30 September, 1961. On the 7th, 8th and 22nd of September 1961 fishing was stopped because of the menace of the two hurricanes "Betsy" and "Esther".

3. Fishing ground and depth

The area of operation was on the NE Slope of the Grand Bank (Sub-area 3 L) at 230 - 400 m. Most often trawling was made at the depth of 270 - 300 m.

4. Technique and gear

The technique used on the "Kastor" is stern-trawling. On the fishing ground were used bottom trawls made of sisal and nylon, 100-feet in size, with 100 mm mesh (stretched) in the cod-end.

5. Fishing effort and catch

The number of trawling hours were as follows:

August	414.5 hours
September	<u>388.5 hours</u>
Total	803 hours

6. Catch composition and yield per unit effort by depth zones

Thorough investigations were carried out in the chosen areas on the catch composition and the yield per unit of fishing effort. The data are given in Table I.

7. Investigations on the redfish (Sebastes sp.)

The samples which were investigated consisted of redfish of mentella type (98.7% of all investigated fish) and of marinus type (1.3%). The total length of both types is shown in Fig.1* and for mentella separately for males and females in Fig.2. Length and sex composition of mentella changed in relation to the depth of fishing (see Fig.3).

The percentage of females and the average length of caught fish increased with growing depth.

* The tables on which Figs. 1, 2 and 3 are based will be given in the Sampling Yearbook for 1961.

Exceptional conditions were found in the area of latitude 47°35'N and longitude 47°10'W (situated towards the south of the other three depth zones).

In this area were found, besides large percentages of males, also large numbers of fish of small size (chiefly males) of modal length 27-28 cm.

Table I shows that in the by-catch from this area occurred quite a number of cod and some gray sole (*Glyptocephalus cynoglossus*), species not found at the same depth zone further to the north.

It seems that the above-mentioned peculiarities of the area of 47°35'N and 47°10'W are due to the particular hydrological conditions of this area.

The weight of redfish, type *mentella*, is shown in the Table II. Using for the relation length-weight the general equation:

$$W = c L^3$$

the following length-weight relations are found for each of the sexes of the redfish caught at NE Slope of Grand Bank in August-September 1961:

females	-	W = 0.0151 L ³
males	-	W = 0.0137 L ³
females plus		
males	-	W = 0.0145 L ³

8. Cod length measurements

One sample of cod caught in depth zone 250-270 m was measured giving the following length composition:

Length, cm	Frequency, ‰
30	18
31 - 35	58
36 - 40	58
41 - 45	64
46 - 50	64
51 - 55	87
56 - 60	140
61 - 65	115
66 - 70	110
71 - 75	93
76 - 80	93
81 - 85	47
86 - 90	6
91 - 95	12
96 - 100	23
100	12
Total	1000
No. of spec.	172

9. Length measurements of Hippoglossoides platessoides

In the depth zone 250 - 270 m the factory-trawler "Kastor" caught considerable amounts of Hippoglossoides platessoides, with the following composition:

Length, cm	Frequency, ‰
16 - 20	8
21 - 25	36
26 - 30	85
31 - 35	119
36 - 40	172
41 - 45	208
46 - 50	204
51 - 55	119
56 - 60	47
61 - 65	2
Total	1000
Number of spec.	721

10. Measurements of blue halibut (Rheinhardtius hippoglossoides)

The length composition of blue halibut caught at the depth of 250 - 270 m, was as follows:

Length, cm	Frequency, ‰
31 - 35	49
36 - 40	69
41 - 45	215
46 - 50	231
51 - 55	167
56 - 60	132
61 - 65	56
66 - 70	56
71 - 75	21
76 - 80	7
81 - 85	7
Total	1000
Number of spec.	144

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TABLE I

Catch composition and yield from the various depth zones on the NE slope of Grand Bank in Aug.-Sept., 1961

Fishing area	Fishing date	Central geogr. position		Depth #	The catch per one hour trawling in kg								Total
		Latitude N	Longitude W		Sebastes sp.	Cod	Anarhichas sp.	Hippoglossus solides	Hippoglossus platessoides	Gray sole	Rheinhardt-tinus hippoglossoides	Hippoglossus	
A	15-23 Aug.	48°10'	49°10'	250-270	824	310	49	326	.	13	1	37	1,560
B	24-30 Aug.	48°00'	48°40'	290-300	1300	219	43	75	.	21	2	53	1,713
C	1-14 Sep.	47°55'	48°05'	310-320	952	101	14	9	.	12	4	12	1,104
D	15-19 Sep.	47°55'	47°35'	330-350	1236	92	10	3	.	14	1	6	1,362
E	20-21 Sep.	47°35'	47°10'	310-350	1012	232	8	2	14	6	4	34	1,312
Average for total trip from 1 Aug. to 30 Sep. 1961					929	164	37	124	.	17	5	96	1,372

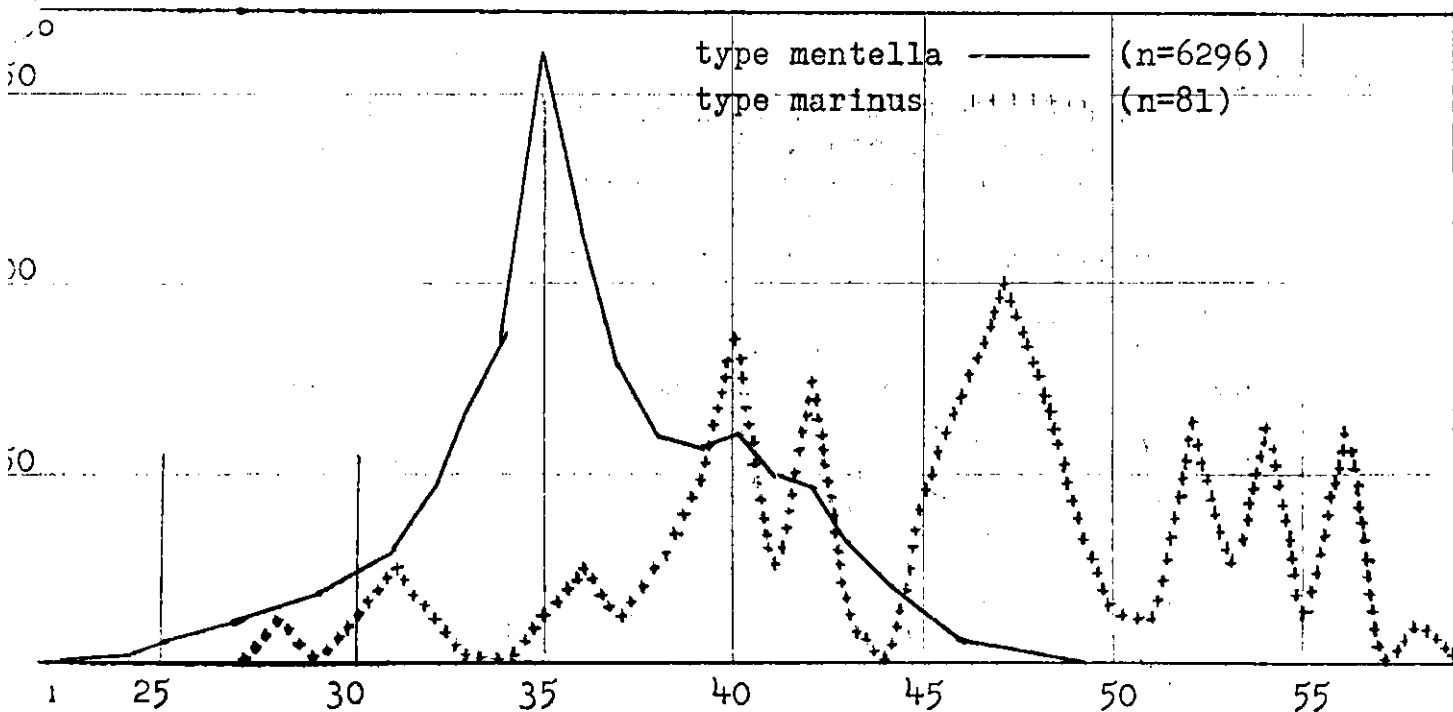


Fig. 1 Length composition of redfish type marinus and type mentella caught on NE slope of Grand Bank in August-September 1961.

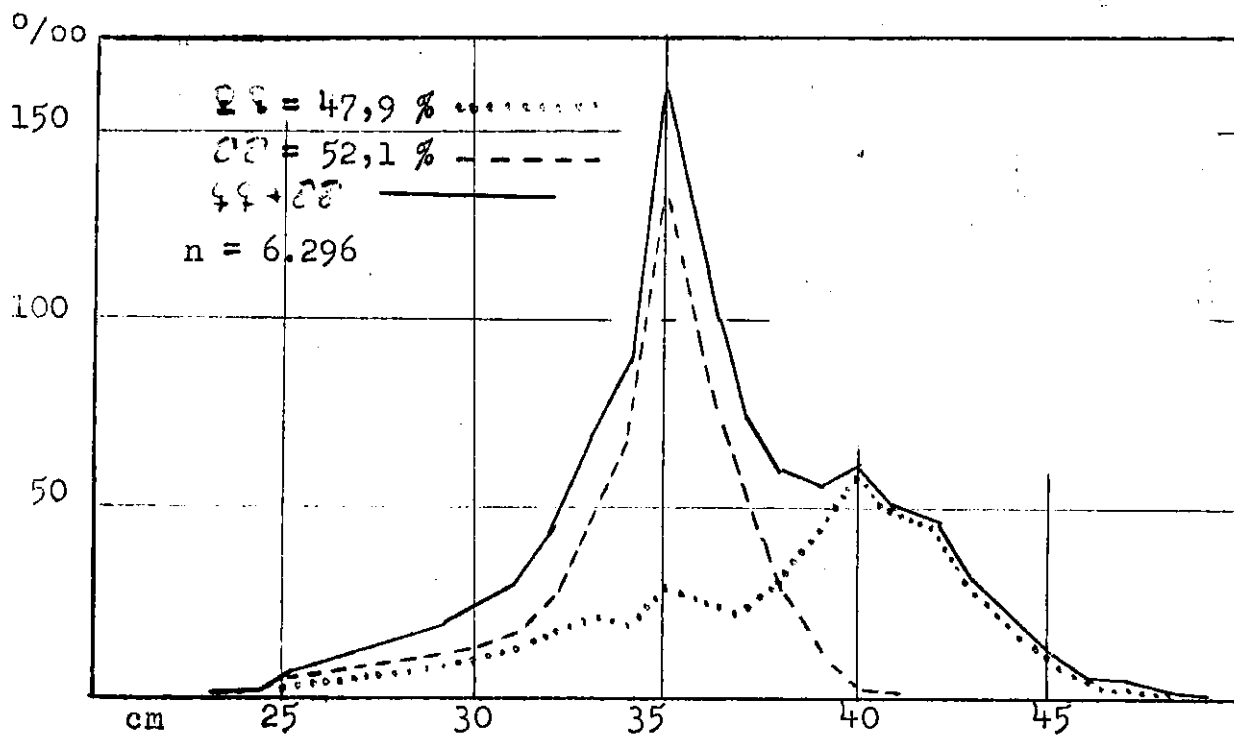


Fig. 2 Length of females and males of redfish type mentella caught on NE slope of Grand Bank in August-September 1961.

Table II

Length - weight relation observed for redfish type mentella caught in August-September 1961 on the NE slope of Grand Bank.

Length cm	females	males	females plus males
	average weight in g		
27	295		295
28	352	255	320
29	410	325	368
30	420	405	411
31	472	(405)	(419)
32	503	469	479
33	(503)	493	(496)
34	572	547	553
35	689	584	597
36	714	644	656
37	774	702	732
38	871	719	791
39	923	813	895
40	1001	990	1000
41	1072		1072
42	1119		1119
43	1193		1193
44	1293		1293
45	1238		1238
46	1360		1360
47	1413		1413
48	1705		1705

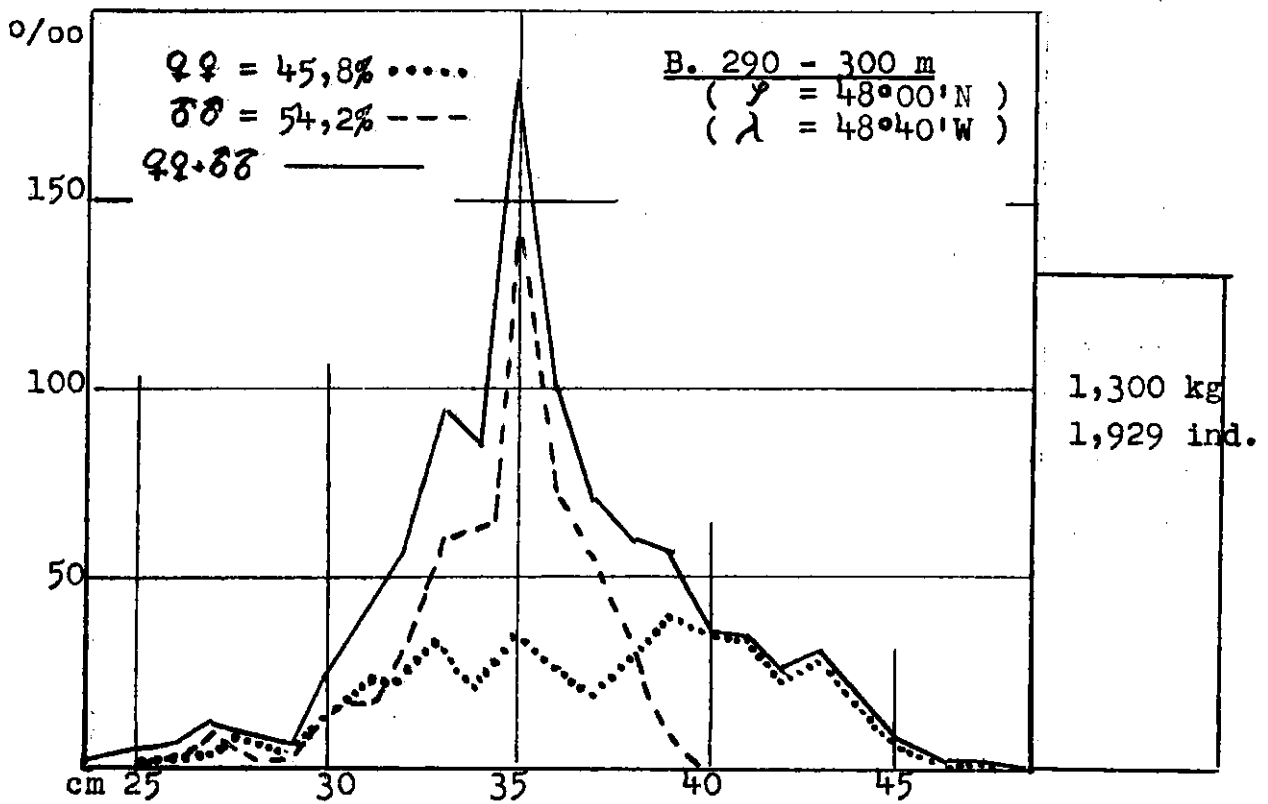
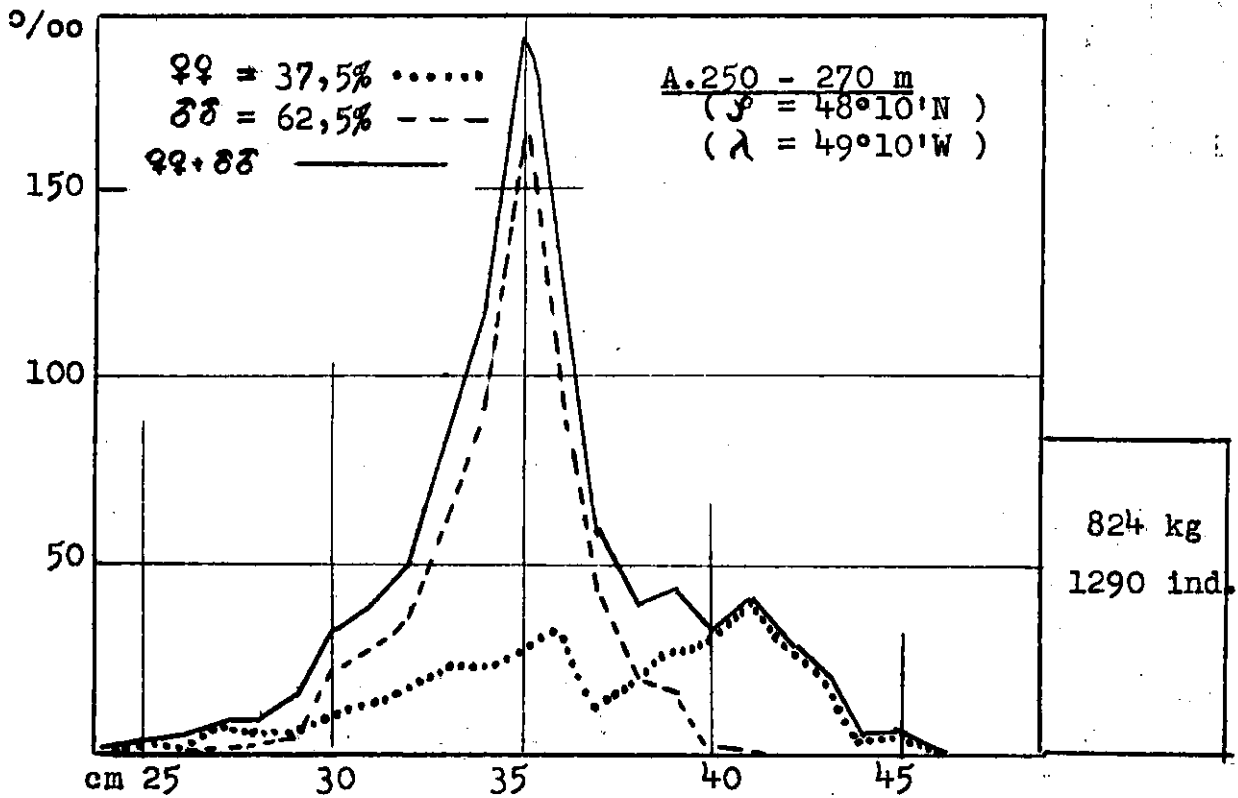


Fig. 3 Length and catch per unit effort of redfish type mentella in several depth zones on NE slope of Grand Bank in August-September 1961. The rectangles to the right show catch per 1 hour in kg and in number of fish.

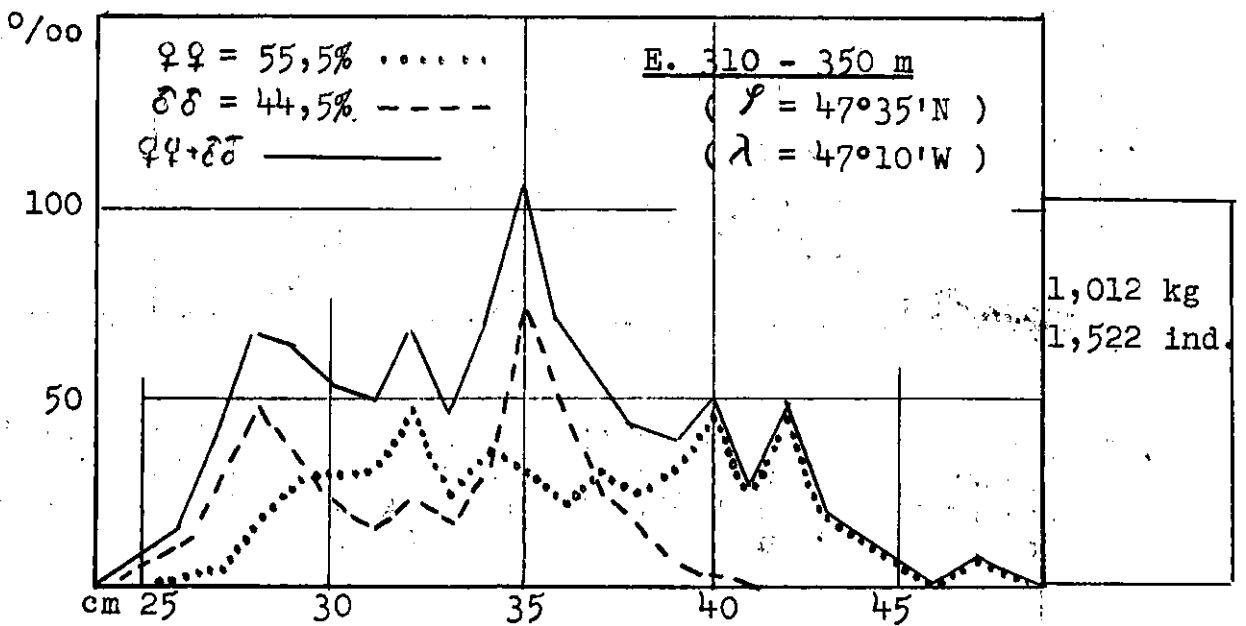
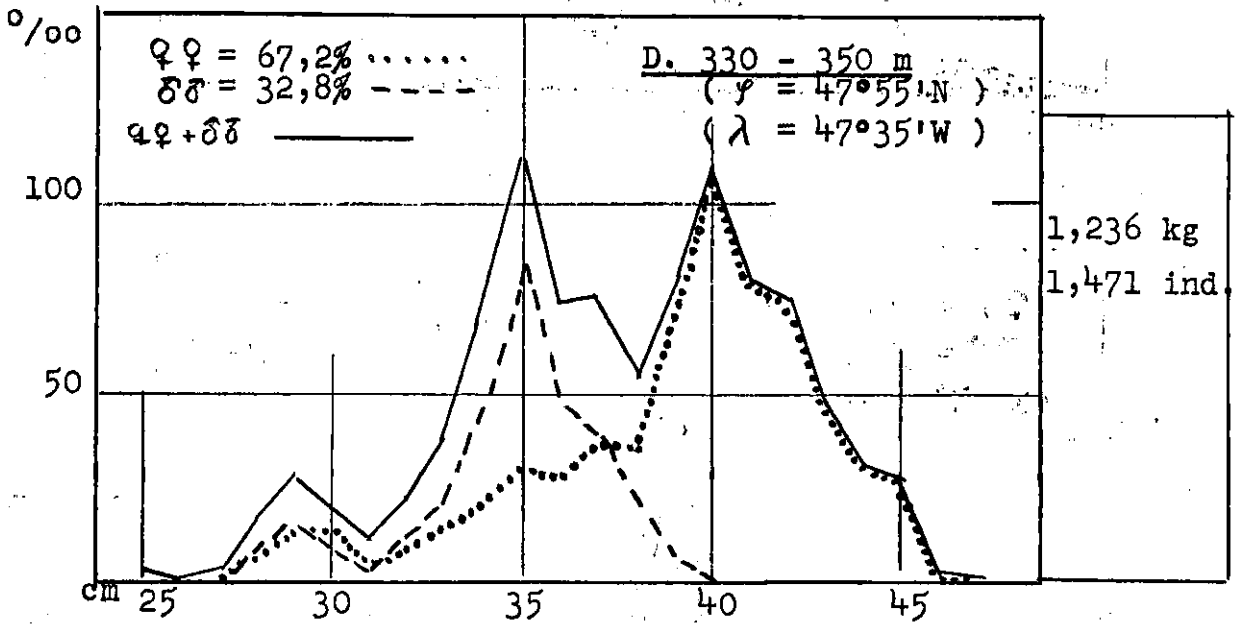
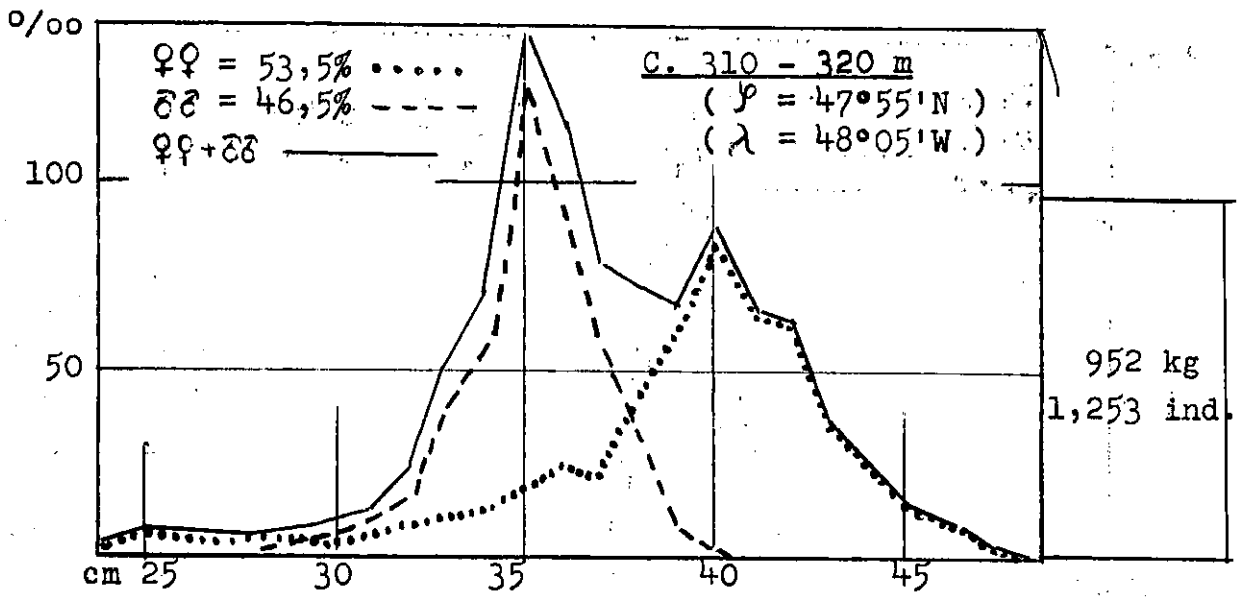


Fig. 3 continued.