

International Council for the
 Exploration of the Sea.

C.M. 1955.

Comparative Fishing Committee.

No. 16. *F*

Experiments with large-mesh trawls in the Bear Island Area.

by

G. Sætersdal

The largest mesh size previously tried in European waters seems to be 10cm. The general biology and the marketable sizes of the fish in the Barents Sea - Bear Island Areas, however, offer some special problems which justify trials with larger mesh sizes.

The following experiments were carried out in the Bear Island Area in the period 10th to the 26th of May 1954 by the vessels "Thor Iversen" (82 feet) and "Peder Rønnestad" (86 feet) belonging to the Fisheries Directorate, Bergen.

All the trawls used had a 50 feet headline. Two pair of types were tried: Twine trawls with an average mesh size in the cod-end of 10cm. and 13cm. respectively, and cotton trawls with a hemp cod-end and the same average mesh sizes of 10cm. and 13cm.

The experiments were planned as series of simultaneous parallel hauls, with changing of gears in order to counter balance small differences in fishing power peculiar to ship, ground rope etc. The following series of successful hauls were made:

- | | |
|-----------|--|
| Series A. | 12 parallel hauls, twine. May 10th-11th. |
| | "Thor Iversen" 10cm. Total towing time 17 hours. |
| | "Peder Rønnestad" 13cm. " " " 16 " , 10 min. |
| Series B. | 12 hauls, twine. May 11th-13th. |
| | "T.I." 13cm. 21 hours 30 min. |
| | "P.R." 10cm. 21 " 05 " |
| Series C. | 10 hauls, twine. May 21st-23rd. |
| | "T.I." 10cm. 16 hours |
| | "P.R." 13cm. 14 " 45 min. |
| Series D. | 9 hauls, cotton/twine. May 13th-20th. |
| | "T.I." 13cm. 11 hours. |
| | "P.R." 10cm. 10 " |
| Series E. | 4 hauls, cotton/twine. May 20th-21st. |
| | "T.I." 10cm. 5 hours 30 min. |
| | "P.R." 13cm. 5 " |
| Series F. | 11 hauls, twine. May 24th-26th. |
| | "T.I." 10cm. |
| | "P.R." 10cm. |

The small differences in the total towing time have not been compensated for in the following comparisons.

All the cod caught in each haul were measured except in the case of series F. where only representative samples were taken. The figures 1-3 show the length distribution in the series A-E and the percentage length distribution in series F.

Series F show that the selective effect of the two 10cm. twine trawls used were almost identical. Of the other types of gears, only one gear was available and was accordingly used by both vessels.

Concerning ourselves with the twine trawls, series A, B and C, it is seen that there is a great difference in the selective effect of the two mesh sizes. The 50% release length of the 13cm. mesh in relation to the 10cm. mesh is about 55cm. in all three series.

Series A, B and C also show the phenomenon found in many previous experiments of this kind: fish of the larger size groups is taken in larger numbers by the widest mesh. That this difference may be of practical importance is clearly illustrated when the weight of the catches is considered, see Fig. 4. Here the weight of the catches from the series A, B and C is shown cumulatively towards decreasing fish size, the unity being the average weight of a 30cm. cod multiplied by thousand.

The series D and E, cotton/hemp, consist of considerably fewer hauls than the twine series, and the results differ from those of the twine trawls in the poor catches obtained by the 13cm. mesh. This may be due to some peculiarity of this special gear.

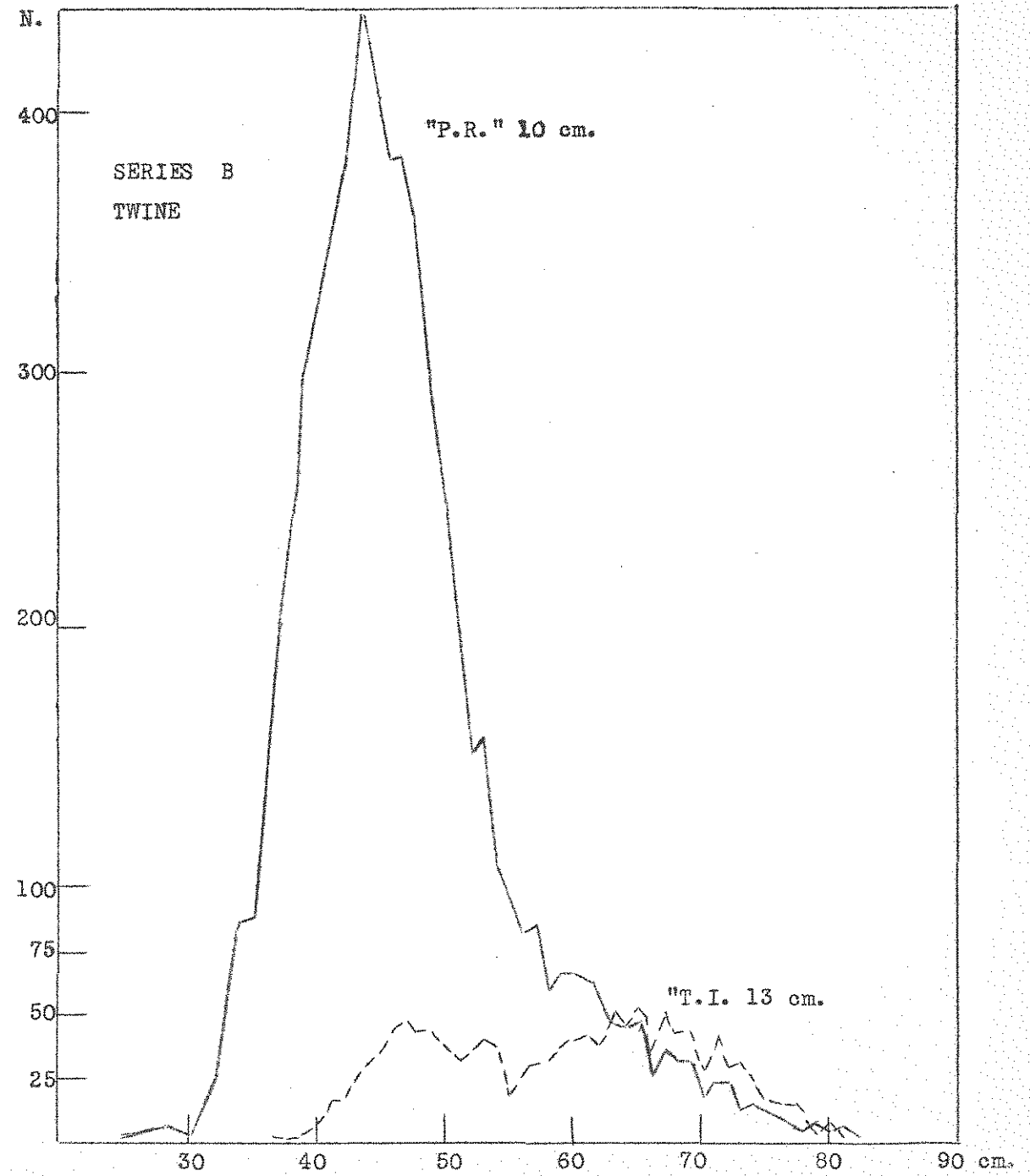
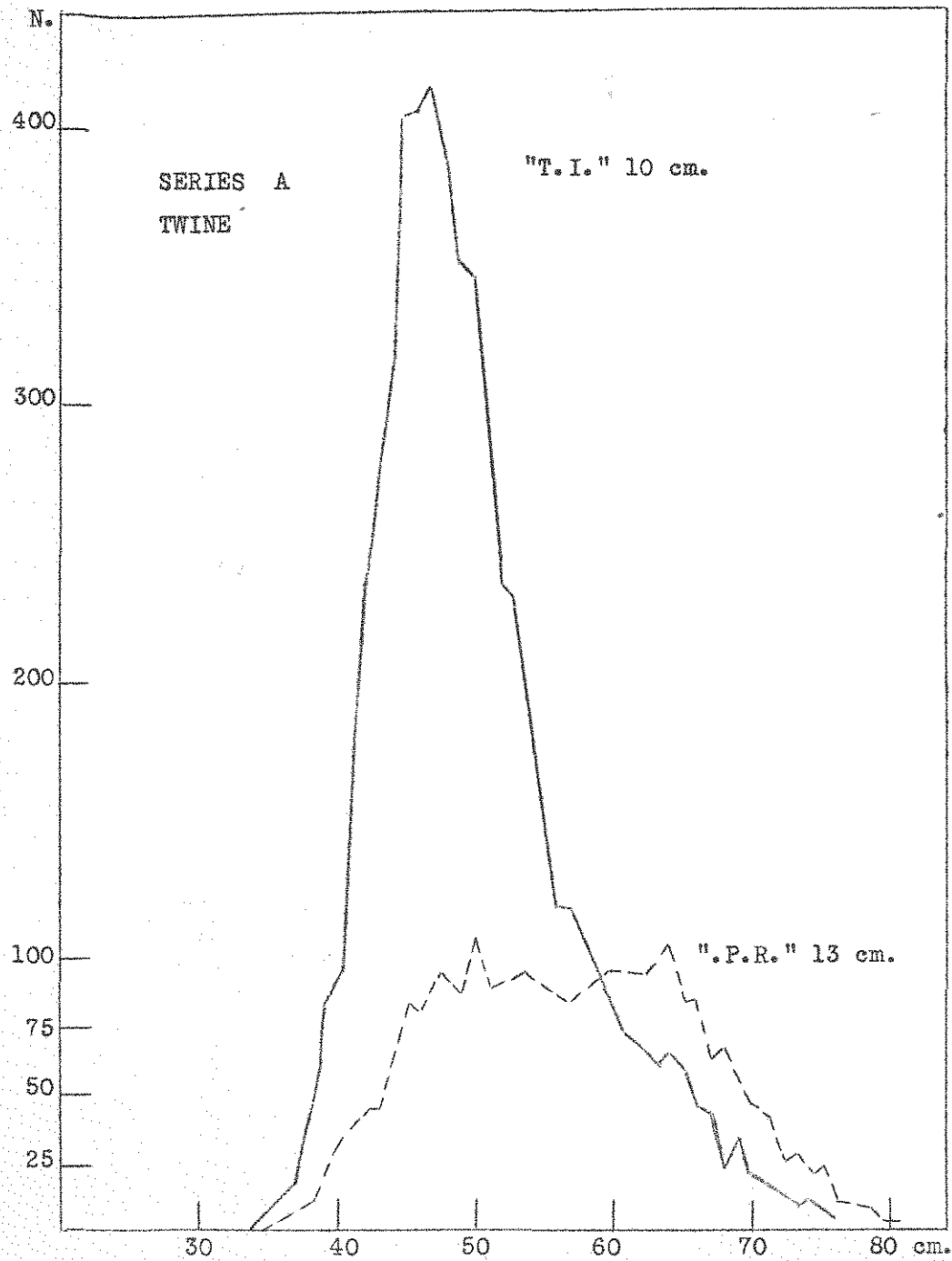


Fig. 1. Length distribution of cod. Series A: 12 parallel hauls May 10th.-11th. Series B: 12 parallel hauls May 11th.-13th.

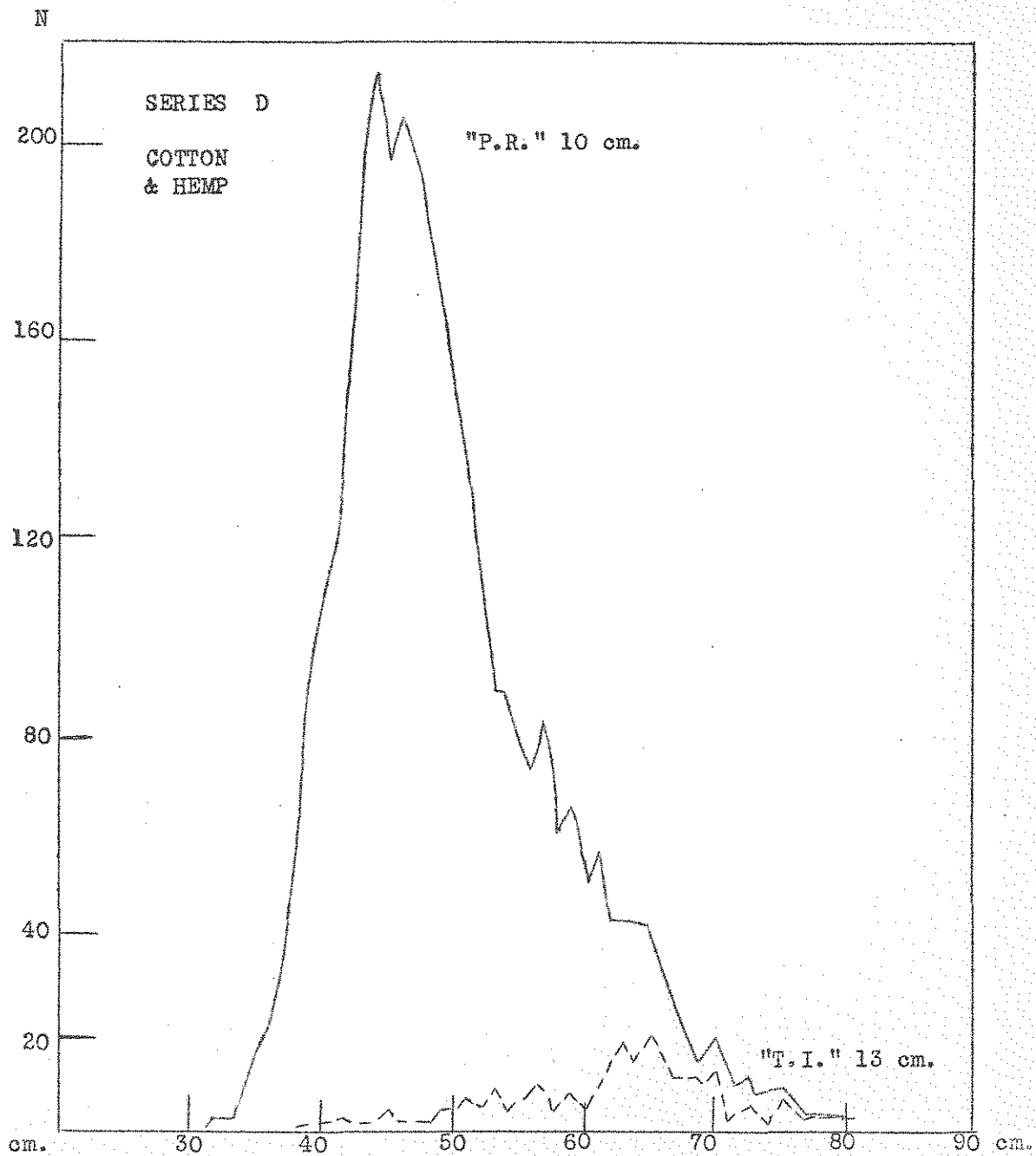
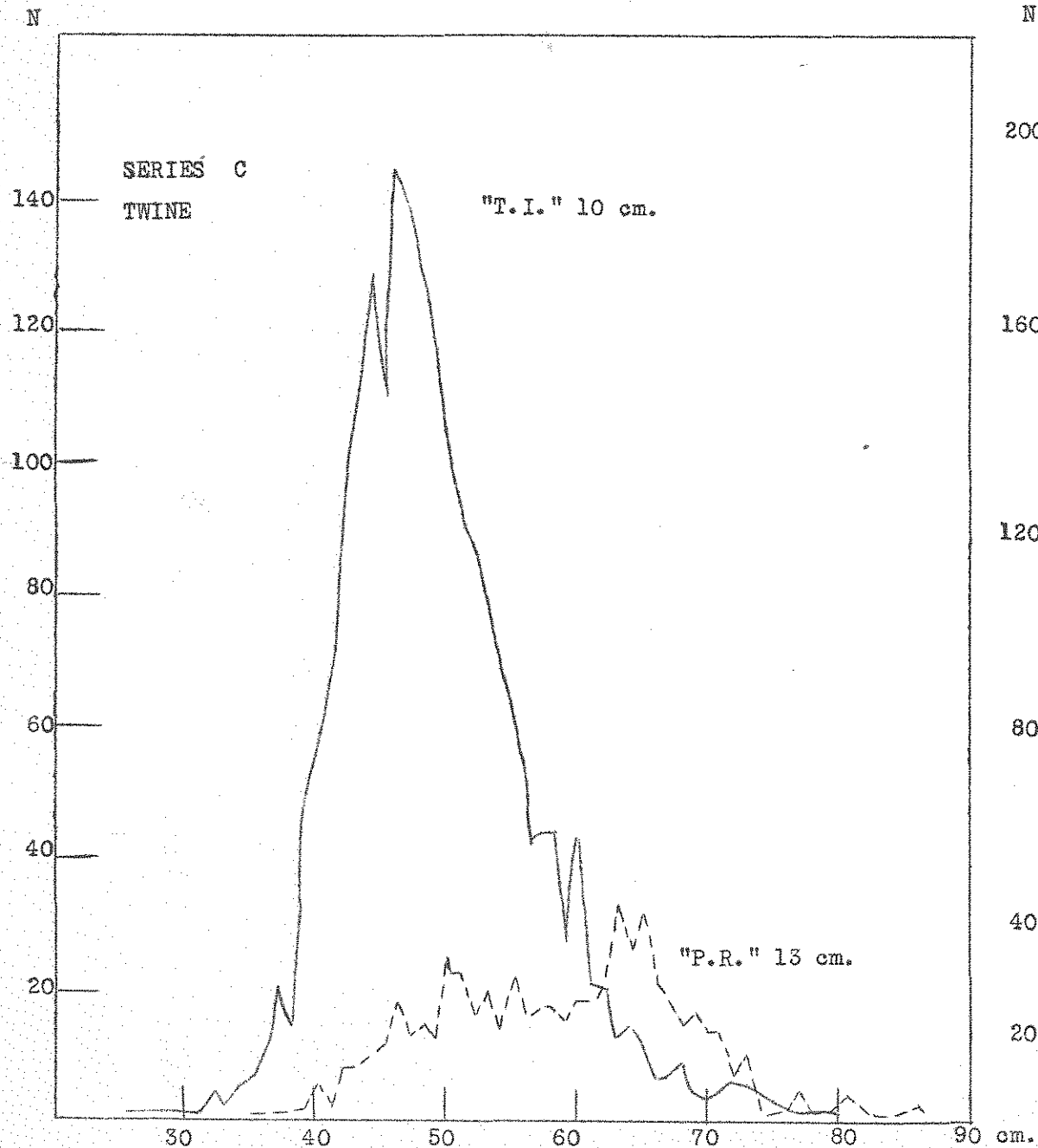


Fig. 2. Length distribution of cod. Series C: 10 parallel hauls, May 21st.-23rd. Series D: 9 parallel hauls May 13th.-20th.

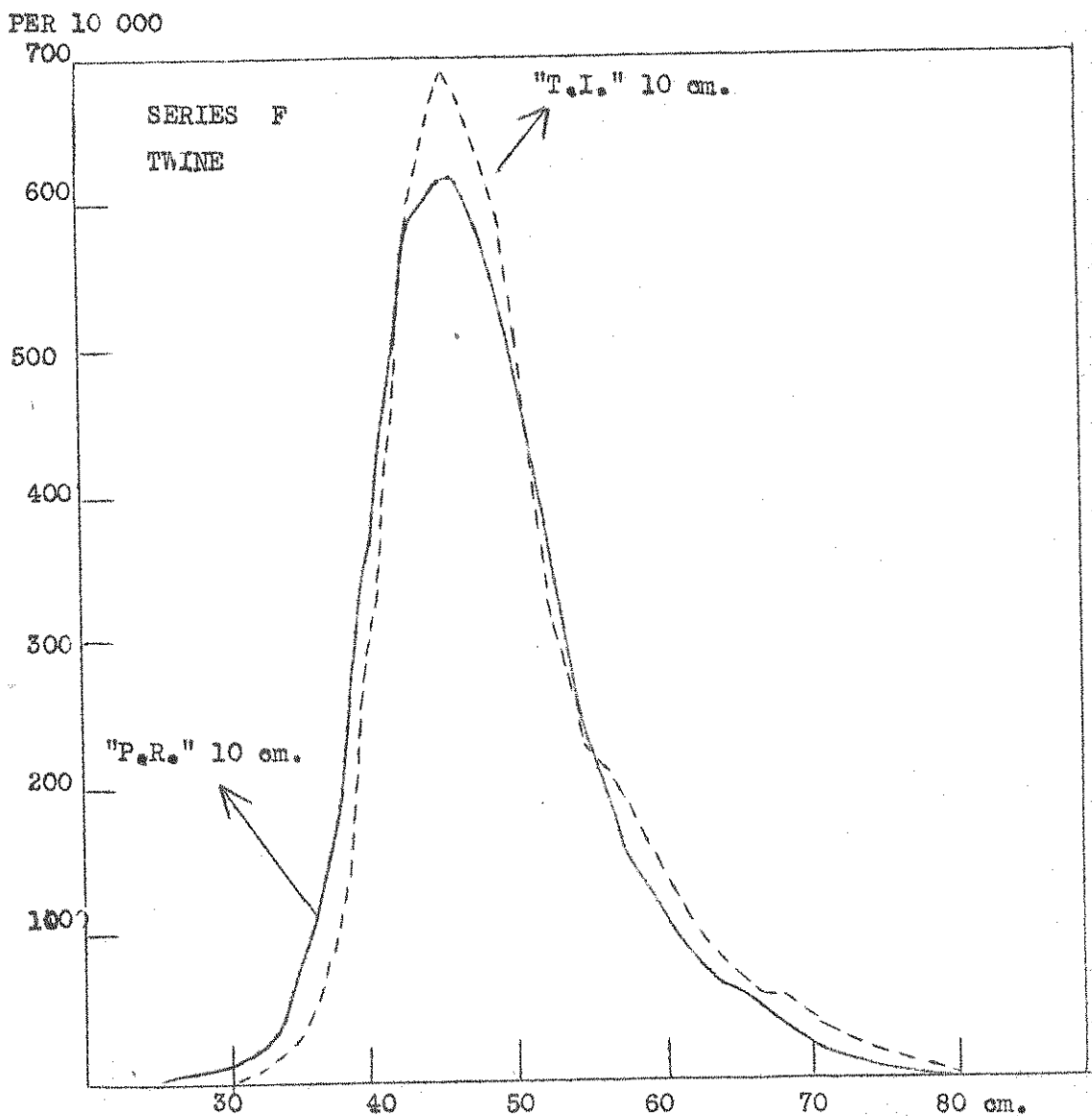
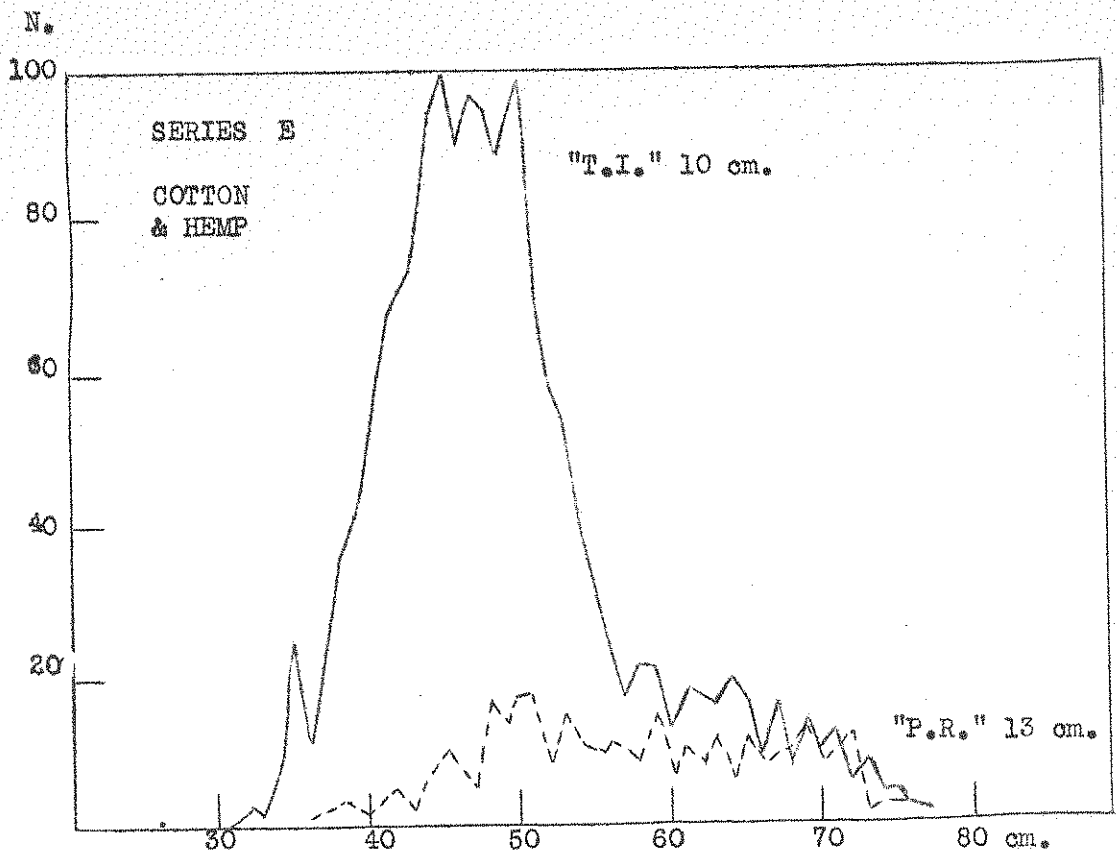


Fig. 3. Series E: Length distribution of cod in 4 parallel hauls May 20th.-21st. Series F: Percentage length distribution of cod from 11 parallel hauls May 24th. - 26th.

WEIGHT

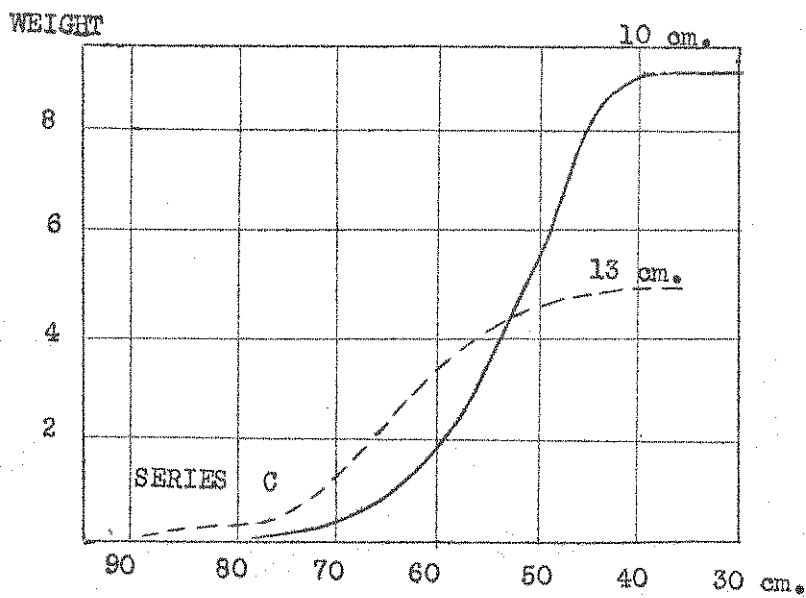
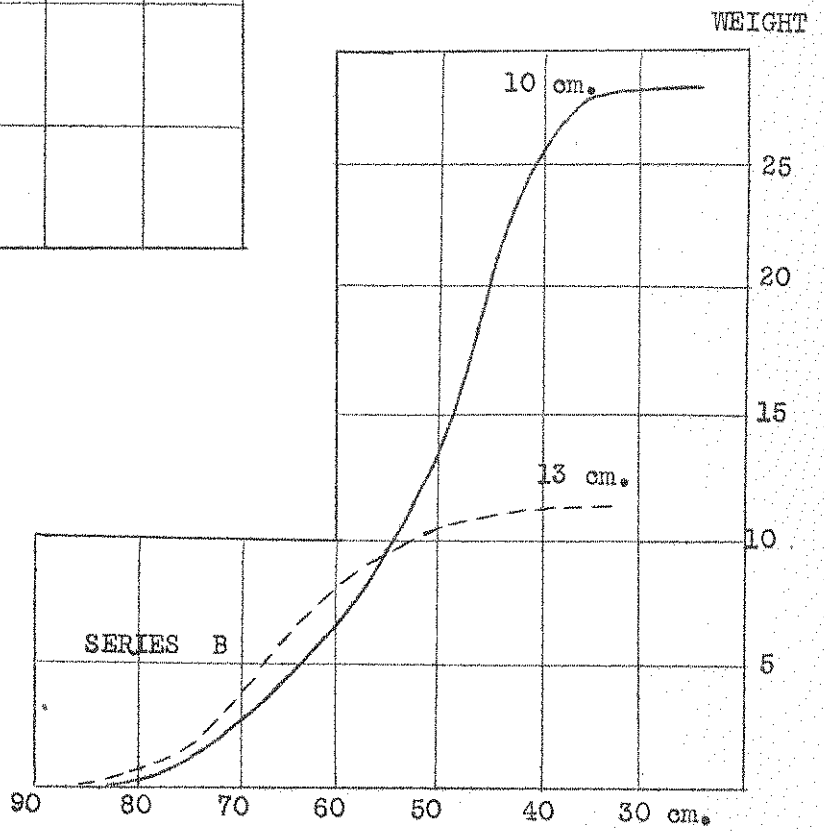
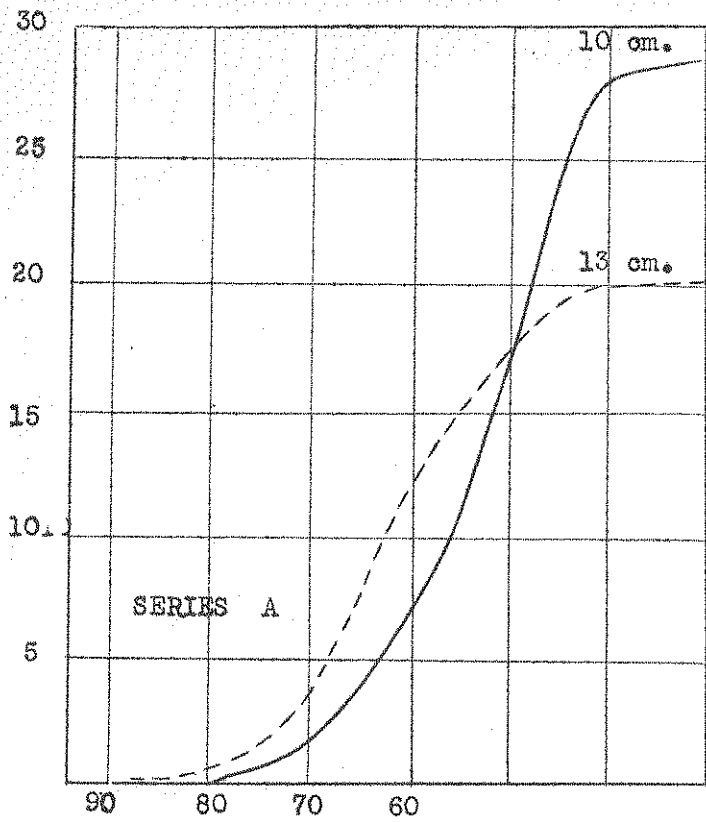


Fig. 4. Cumulative weight of the catches.