



**AN ROINN TALMHAIOCHTA AGUS IASCAIGH**  
**(Department of Agriculture and Fisheries)**

**FISHERY LEAFLET No. 21.**

**EEL RESEARCH IN 1969**

**by**

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## EEL RESEARCH IN 1969.

Most of the research effort was concentrated on experiments with summer fyke nets on the lines of the 1968 work (leaflet No. 9). Three zoology students, Messrs. Dermot Douglas, Tommy Hayden and Martin O'Grady were employed on bursaries for the field work and the Electricity Supply Board co-operated on the Shannon System. The standard set of eight nets (sixteen traps with eight leaders, arranged in line) was used on the Corrib system. On account of losses and damage to nets only seven were available for the Shannon but it is unlikely that this made any material difference to the results. When possible fishing took place daily. The figures are based, with one exception, on the total number of days when the nets were fishing, including weekends and stormy weather when they were not lifted daily. The exception was Lough Mask where persistent rough weather made lifting the net impossible for a fortnight. It was found in this case that the smaller eels escaped and the catch was therefore not typical of normal conditions. The nets used had a mesh size at the cod end of 10 mm.

On the Corrib system the River Corrib, the southern part of Lough Corrib, Lough Carra and the eastern side of Lough Mask were studied. On the Shannon the 'Reservoir' between Killaloe and Parteen, Lough Derg and Lough Ree were chosen. The eels were measured, weighed and sexed and otoliths and stomachs were collected. The nature of the flora and fauna where the catches were made was also recorded. The analysis of the stomach contents is still in progress both for 1968 and 1969. Otolith reading for 1968 was completed and some studies were made on the correlation between length and weight of eels from different waters.

Other eel work included a study by electrical fishing and fyke netting of the eels of the River Erriff in Co. Mayo and some observations on the migration of elvers there and on the Owenea, Co. Donegal. Fyke nets were also used at the Galway barrage on the River Corrib to find out whether these nets were liable to interfere with the passage of salmon smolts. This experiment showed that the damage to smolts was negligible. Of 3,600 smolts which passed within 20 feet of the net two were caught.

The results of the measurements of the eels are given in Fig. 1 and Table 1. In Table 1, the figures for 1968 are included for comparison and Fig. 2 gives the 1968 length distribution.

Table 1. Eel catch and fishing effort. (In the last column the figures show the percentage by weight of eels longer than 40 cm.)

	Number of eels	Weight of eels (grams)	Number of days fishing	Number per net per day	Weight per net per day	Percentage of eels exceeding 40 cm (16") in length.
1968						
L. Corrib N.	185	28,550	44	0.5	61	76.5
L. George	77	8,536	30	0.3	17	47.5
L. Inchiquin	284	51,968	30	1.1	154	70.9
Cooteshill Ls.	285	74,901	35	1.0	262	97.7
Killeshandra Ls.	213	53,611	30	0.9	206	92.3
1969						
R. Corrib	33	4,386	3	1.3	182	65.5
L. Corrib S.	389	69,934	18	2.7	485	78.3
L. Mask	77	14,277	8	1.2	223	87.0
L. Carra	71	15,838	13	0.6	152	92.5
Reservoir	57	8,865	7	1.1	180	88.3
L. Derg	269	52,197	23	1.6	324	93.7
L. Ree	12	4,583	10	0.1	65	100.0

In 1968 the poor catches (less than 100 grams per net per day) were made in lakes where suitable feeding areas for eels were limited. This explanation does not account for the very small catch in Lough Ree in 1969 where the feeding should be excellent. There is clear evidence in the poor catch and the relatively large size of the eels that the lake is understocked. The figures in the last column of Table 1 show for each river system an increasing percentage of eels of over 40 cm. as the distance from the river mouth increases. This suggests that the total stocks in the upstream lakes are smaller than downstream, resulting from a reduction in the numbers of elvers or young eels which travel that far. Long-line fishing probably reduces the stocks further. The Corrib system also shows a steadily decreasing catch in numbers and weight of eels from lower Lough Corrib to Lough Carra (upper Lough Corrib has a poorer stock than any of these points but this is due to the nature of the bed of the lake).

The age distribution of the 1968 eels is shown in Fig. 3. This agrees with the conclusions drawn from the length measurements for that year and shows that rapid growth and early maturity are the rule for the rich feeding areas (Cavan lakes and Lough Inchiquin) while slow growth and late maturity occur in regions of poor feeding. Correlation between age and weight has not been calculated in detail yet but the indications are that very few eels of less than nine years of age reach a length of 40 cm (16 ins.). Calculations of the correlation between lengths and weights of Lough Derg and Lower Lough Corrib eels show that the Corrib eels are heavier. An average 40 cm Corrib eel weighs 225 grams, one from Lough Derg weighs 160 grams (16-inch eels weigh 8 oz. and 6 oz. respectively).

The results of the 1969 fyke netting confirmed the conclusions of the previous year that there is very little hope of these nets being used on a large scale for commercial fishing. The best catch, from Lower Lough Corrib, would have yielded about £40 per month per eight nets (cost £60). The question of how many nets could be used in an area of water without over-fishing has yet to be answered.

The information available at present suggests that a large investment in fyke-netting equipment would at best be very risky. Small-scale netting by a resident fisherman should provide a supplementary income of £50 to £100 a year in a good lake.

The original purpose of the fyke netting experiments was to find out whether there were possibilities of making a substantial increase in the number of yellow eels caught in the country and in the number of people employed in fishing for them. From this point of view the results have been disappointing. It is apparent that the national stocks are low and any greatly increased fishing for yellow, that is immature, eels would serve to reduce them further. The aim of future experimental work will be to determine optimum rates of stocking with elvers to increase the population and catch. Further analysis of the information which the past few years' work has yielded will have an important bearing on this problem and experimental fishing on the same lines will be continued. The most valuable positive result of the work to date has been the establishment of basic techniques which, applied over a number of years in the future, will yield essential information for rational regulation of the fishery. It will also be possible to assess the effect which eels have on other species of fish, especially on salmon and trout.

The views in this leaflet are based on the data from experiments to date and may well be revised in the light of results from future work.

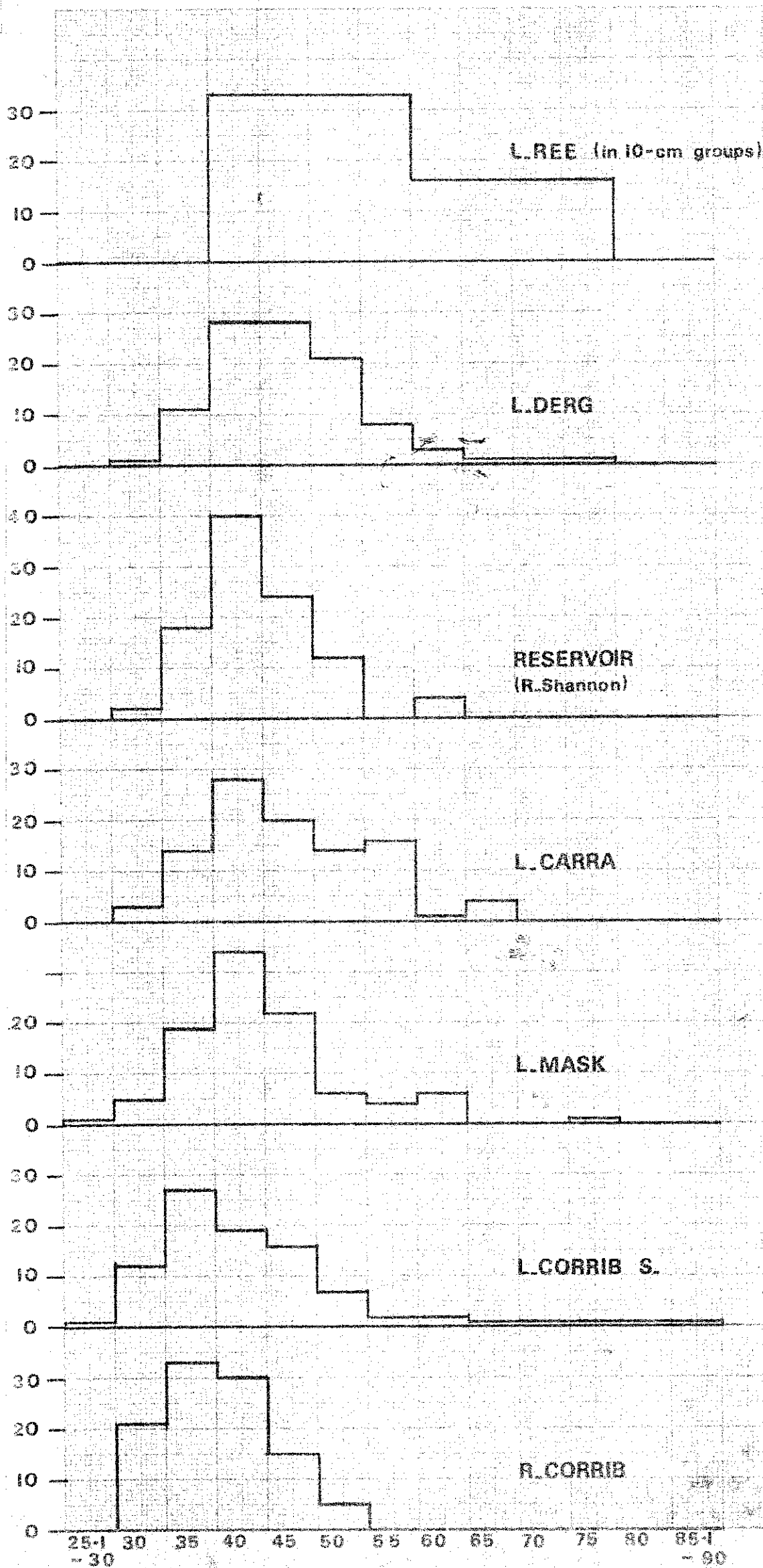


Fig 1. Percentage length distributions 1966

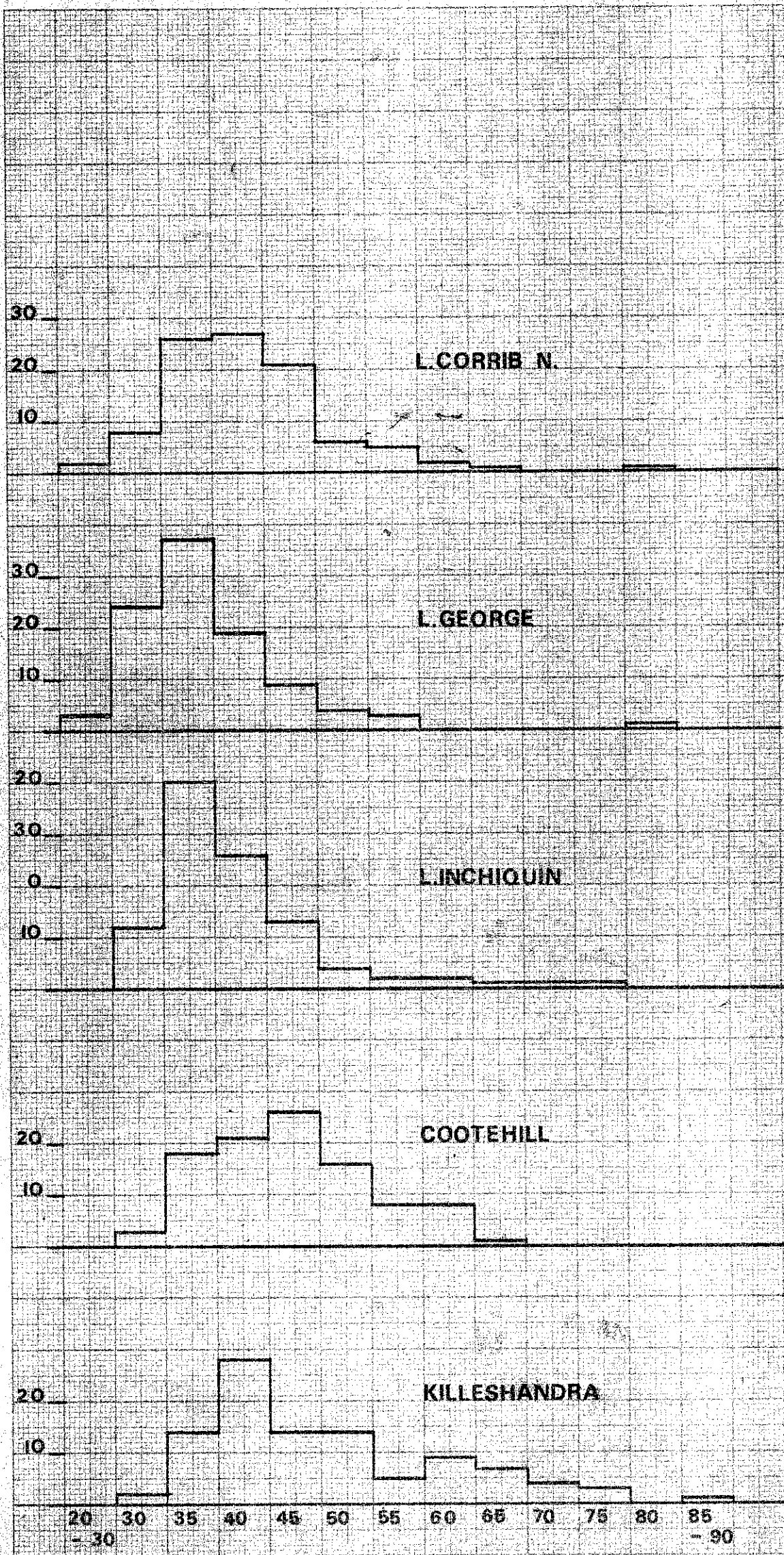


Fig 2. Percentage length distribution 1968



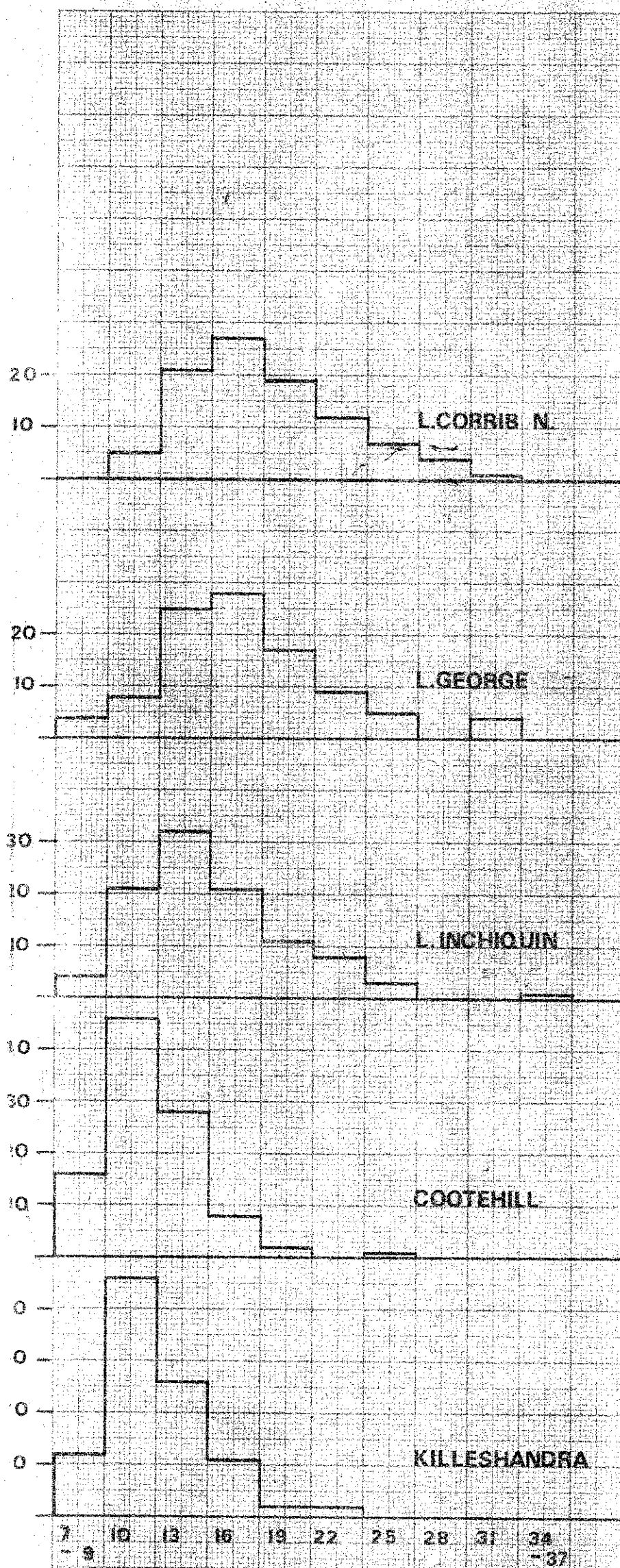


Fig 3. Percentage age distribution 1969