



TEXT-FIG. 1.—Relationship of the length of the anterior 30 setigers to the total length of intact specimens.

DISCUSSION OF METHODS

The indirect method of arriving at the length of incomplete worms was developed because about a third of the specimens in each sample were damaged in collecting. Judging from the scatter of the points in Text-fig. 1, the estimated lengths have an extreme error of plus or minus one centimetre. This seemed preferable to possibly introducing an unknown error by discarding a third of the sample. The thirtieth setiger was used as a reference point as the gonads develop slowly in the anterior setigers and shorter fragments could not be sexed satisfactorily.

The form of the length-frequency graphs suggest that only a proportion of the specimens in the smaller size groups was collected, the error being greatest for the smallest worms. No specimen with a length of less than two centimetres was found. The small worms were found in the surface layers of mud which were wet and very soft and difficult to sort thoroughly in the field.

The length-frequency data were analysed by a graphical arithmetic probability method (Harding, 1949). This confirmed the impression that all the samples contained two size groups, but failed to separate them so that separate mean lengths could be calculated. Consequently growth rates were derived from inspection of the length-frequency curves. A recent example of the successful use of Harding's method is the comprehensive study by George (1964: 53) of the life history of the polychaete *Cirriiformia tentaculata*.

THE ANNUAL CYCLE

Immature specimens were found in all the collections (see text-fig. 2) but the main influx occurred from November to June. Only 27% of the worms in the December collection were sexually differentiated although others had developing, but undifferentiated gonads. By June all the specimens over 10cm long (51% of the sample) were sexually differentiated and metamorphosis (described below) had begun. The appearance of the lamella at the base of the dorsal cirrus was taken as the beginning of metamorphosis, although a gradual colour change was apparent earlier. The rate of growth from December to June was about one centimetre per month.