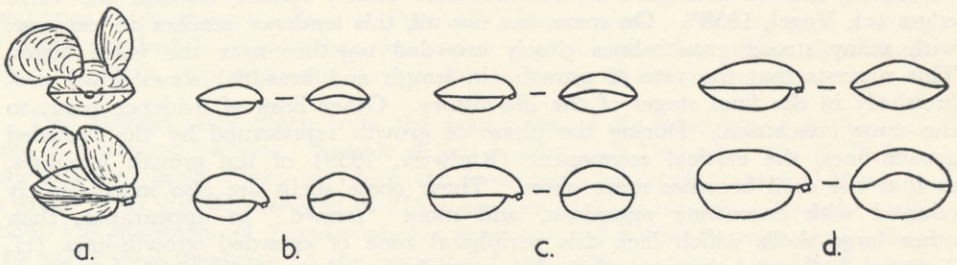
fall (compare especially Text-fig. 2 *a* and *c*). Similarly, the trough between the peaks may be due to under-representation of the classes of still earlier years. Poor representation of certain year-classes might be due to the patchy distribution of the shells: even an area ten times that from which Percival's sample came may still be too small to ensure an accurately representative sample of the population. Alternatively, since the troughs are almost coincident in the two samples (Text-fig. 2 *d, e, f*), there may have been a general failure in spatfall throughout the rock-pool during the years in question (I owe this suggestion to Dr K. A. Joysey).

This interpretation of the histograms implies that the brachiopods grow relatively slowly (the rate indicated would suggest that the regular growth-lines may be formed annually); that they take several years to reach maturity (perhaps 5 to 7 years if the growth-lines are indeed annual); and that some survive thereafter for several years, growing less and less in length and breadth but increasing slowly in height, and gathering an increasingly dense epifauna on the surface of the shell.



TEXT-FIG. 3.—*Terebratella inconspicua*: shells from sample A. (*a*) Posterior and lateral views of large shell with two other shells attached. (*b, c*) Lateral and anterior views of normal immature shells (upper figures) and obese, stunted (?), mature shells of approximately same length and breadth (lower figures). (*d*) Lateral and anterior views of normal mature shell (upper figures) and obese, old-aged (?), mature shell. All figures natural size.

Sample A contains a few shells with all the characters—obesity, crowded peripheral growth-lines, tanned appearance and heavy encrustation—here interpreted as signs of considerable age, yet at an absolute size much below the normal for such shells (Text-fig. 3 *b, c*). This probably indicates phenotypic stunting (cf. Vogel, 1959). In view of the nature of the rock pool, slight differences in position of attachment may cause significant differences in the degree of wave-action, temperature fluctuation, etc., to which individual brachiopods are subjected; and those attached in the less favourable positions may grow more slowly, and reach maturity at a lesser size, than the normal. Indeed, sample A may have come from an *average* position less favourable than sample B, for its peak of large shells is at a slightly lower size (Text-fig. 2 *e, d*).

It seems both premature and hazardous to form any conclusions about the rate of mortality in *T. inconspicua*. Rowell's (1960) size-distribution graph for a collection of the inarticulate brachiopod *Crania anomala* (Müller), like Percival's graph for *T. inconspicua*, shows a high peak of very small shells; and Rowell concludes that there is a high rate of mortality in the early stages. This may be true also of *T. inconspicua*, although the samples analysed here do not give any clear evidence for it.

The lack of direct evidence on the rate of growth and mortality has necessarily limited this discussion to an interpretation which seems to satisfy the available indirect evidence. Although this interpretation must therefore be tentative, its divergence from Percival's should warn palaeontologists to await the results of a more thorough study of the growth of a brachiopod population before attaching too great significance to either.