between gusts and squalls is best illustrated by the traces of a Dines pressure-tube anemograph. The trace reproduced in fig. 1 for an ordinary steady wind shows that the force of the wind is constantly oscillating. The general appearance of the trace is a ribbon which has a breadth proportional to the mean wind velocity. The breadth of the ribbon is also dependent upon the nature of the reference; the better the exposure the narrower the ribbon; for an anemograph at a coast station the ribbon is wider for a shore wind than for a sea wind.

From the records obtained at Scilly and Holyhead, Dr G. C. Simpson concluded that a wind of mean hourly velocity *υ* was composed of alternations of gusts and lulls ranging on the average between limits ∙5 + 1∙2*v* and -∙5+∙76*v* with occasional recurrences to extreme velocities of 1∙5 + 1∙3*v* and -1∙0 + ∙65*v*. In other words, the average range of the ribbon is ∙5 + ∙45*v* for the two stations during the hour when the mean velocity is *v,* and the extreme range within the same period is 2∙0 + 68*v*

The differences of gust velocity at stations with different exposures may be illustrated by quoting the breadth of the ribbon for a 30 m. wind at the following stations:—

Southport (Marshside) 10 m.

Scilly 15 „

Shoeburyness 20 „ (from W.)

„ 10 „ (from E.N.E.)

Holyhead 15 „

Pendennis Castle (Falmouth) ... 8 „ (from S.)

„ „ „ . . . . 16 „ (from W.)

Aberdeen 30 „ (from N.W.)

Alnwick Castle 25 „

Kew 30 „

Fig. 2 represents a succession of squalls occurring in an ordinary gusty wind; the squalls succeed one another with fair regularity about every twenty minutes and last in full force for a few minutes. A