

the difficulties likely to be encountered in attempts to link personality dimensions with biochemical processes.

## DISCUSSIONS

ROGER W. RUSSELL

*Indiana University, USA*

Evidence for relations between biochemical events and behavior depends upon demonstration that biochemical events and behavior patterns vary concomitantly. Comments and assumptions in the papers presented provide an opportunity to emphasize the necessity of direct measurements of biochemical events in searching for such concomitant variations. The importance of each of the following points is illustrated by inadequacies in a number of reports in the current research literature.

Direct measures provide information essential for the kinds of empirical checks on the fits between time characteristics of biochemical events and behavioral variables which are required to establish that the two do in fact vary concomitantly.

Direct measurement of biochemical events would prevent inferential errors in drawing conclusions about biochemical system-behavior interactions from experiments employing drugs which may have multiple effects biochemically.

By measuring variations in biochemical events directly rather than indirectly, e.g., in such terms as drug dose, comparisons are possible between experiments involving the same biochemical events when different techniques are used to vary them.

JAMES V. McCONNELL

*University of Michigan, USA*