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#### REPLICATION STUDIES OF ANXIETY

DEAR SIR,

There are many who feel that the paucity of replication studies is a consistent failing in current psychiatric work. It was therefore with considerable pleasure that we turned to the paper on 'Neurotic and Thyrotoxic Anxiety: Clinical, Psychological and Physiological Measurements' by Greer *et al.* (1973). The pleasurable anticipation was, however, speedily transformed to dismay on realizing that while departing in the crucial technical details from the Lader and Wing study (1966) they nevertheless drew conclusions as if their own experiments were a faithful replication of that study.

To particularize, spontaneous fluctuations were measured in resistance units (Sternbach, 1960), without an explanation being proffered. Lader and Wing are explicit in insisting on the use of log conductance units as being more appropriate; and, depending as they do upon basal levels on which the changes of spontaneous fluctuations are superimposed, these would result in quite different figures.

The most important modifications, which Greer *et al.*, appear to dismiss as being of small relevance, relate to the auditory stimuli: these numbered 15 instead of 20, were given over a period of 15 minutes instead of 20 minutes, varied in duration from 5-15 seconds instead of all being of 1 second duration, and were randomized at intervals from 20-120 seconds instead of 45-80 seconds. These are major modifications, as numerous reports in the literature associating habituation rate with number, frequency and duration of application of stimuli will testify (Malmo *et al.*, 1948).

At another level of criticism one might argue: that a 20-second interval between stimuli is insufficient to allow for spontaneous fluctuations to emerge, especially in individuals in whom the recovery arm of the response curve is unduly prolonged; that no information is given whether the women were in the follicular or luteal phase of the menstrual cycle—yet this is known to be important

(McKinnon, 1954; McKinnon and Harrison, 1961); that there was no mention of standardization of the time of day at which recordings were made, which might be thought important because skin conductance is subject to circadian rhythm, being greatest at 2.00 p.m. (Christie and Venables, 1972; Venables and Martin, 1967). The implication by the authors that they have avoided 'methodological defects' is open to question.

At St. Bartholomew's, a faithful replication of the Lader and Wing experiment revealed a high correlation between a psychological rating, the Morbid Anxiety Inventory (Salkind, 1972), and the 'D' score (composite physiological activity); the recording environment was carefully controlled, all recordings were made under exactly the same conditions at the same time of day, and the female subjects were only recorded during the follicular phase of the menstrual cycle. It is hoped to report this study in full but we were able to confirm other substantial correlations between skin conductance variables and the psychological rating.

It appears that in the absence of carefully controlled conditions all that emerged from the Greer *et al.* study was yet another demonstration of the variability of skin conductance measurement.

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DEAR SIR,

Since we did not claim to have carried out 'a faithful replication study' of Lader and Wing's (1966) work, and indeed described our modifications in detail, your correspondents' dismay appears to be an inappropriate emotional reaction. But perhaps their dismay is understandable after all, as they are about to publish on the same topic and may feel that the foundations on which they have built have been somewhat shaken by our results. Turning to their specific points:

(i) We used Sternbach's (1960) criterion of counting the number of spontaneous fluctuations greater than 1 Kilohm because this happens to be a much simpler method than that used by Lader and Wing. Sternbach's (1960) own results, as well as the highly significant intercorrelations we found between spontaneous fluctuations at all times during the test, no matter what changes in skin conductance had taken place (see Table I, Greer *et al.*, 1973), support the validity of the 1 Kilohm criterion;

(ii) We were concerned to measure, not habituation to one-second sounds, but the responses of patients to arousal provoked by auditory stimuli of varying duration at irregular intervals—which might be supposed to be slightly more akin to arousal-provoking situations in real life. Incidentally, there was only one interval of 20 seconds, the remainder all being more than 40 seconds;

(iii) Like Lader and Wing (1966) we did not take into account the phase of the menstrual cycle, but our patients were tested on three separate occasions during a period of four weeks (Ramsay *et al.*, 1973). We are not aware of any published work demonstrating the relevance of McKinnon's (1954) findings to skin conductance measures in patients with anxiety states or thyrotoxicosis;

(iv) All our patients were tested between 10.30 a.m. and 11.30 a.m.

Finally, may we repeat our main finding, viz. that clinical ratings of anxiety, verified by an independent psychological test, were not correlated with any measures of skin conductance. These results cast doubt, in our view, on the *validity* of such skin conductance measures as indices of anxiety.

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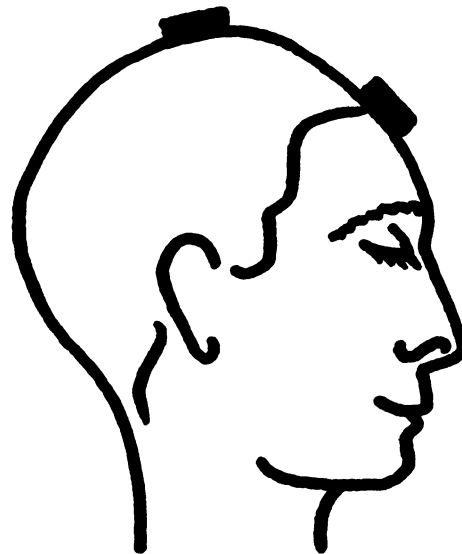
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#### ANTERIOR BIFRONTAL ECT

DEAR SIR,

After Professor James Inglis (*Journal*, August 1970, **117**, 149-56) had suggested an improved ECT technique by electrode placement as remote as possible from the temporal lobes as is consistent with the production of a convulsion, I began to use a midline fronto-central electrode application (see Figure); and having never failed to induce a con-



vulsion with 65 volts a.c. applied for 5-8 seconds during relaxed anaesthesia, I now use this technique routinely. However, Abrams and Taylor in their recent paper on this subject (*Journal*, May 1973, **122**, 587-90), using a low bifrontal electrode placement, appear to have failures, not all of which are overcome by adding an intravenous convulsant drug,