have shown a significant decrease of intracranial size in comparison to age- and sex-matched controls (Förstl *et al*, 1991). We have since extended our measurements to 210 patients with dementia of the Alzheimer type who were drawn from two different prospective studies – one, a longitudinal study on the course of Alzheimer's disease (Study A: Burns *et al*, 1990) the other a clinical trial on 100 volunteers (study B; Eagger *et al*, 1991).

CT-scans for computer-assisted planimetric measurements were available from 210 patients satisfying NINCDS-ADRDA criteria for 'possible' or 'probable' Alzheimer's disease (study A: 31 males, 101 females; mean age 79.8 (s.d. 6.2) years; study B: 45 male, 33 female; 66.3 (s.d. 8.5) years and 34 controls: 10 male, 24 female; 74.3 (s.d. 5.3) years. The largest horizontal intracranial areas measured parallel to the orbitomeatal line were significantly smaller in the patients from study A (155.0 (s.d. 13.7) cm^2) than in the controls (162.3 (s.d. 12.7) cm^2), whereas the patients from study B had significantly larger intracranial areas than the controls (167.5 (s.d. 11.8) cm^2, $F=20.37$, d.f. 2,241, $P=0.000$. The differences mentioned above remained significant at the 0.05 level after Duncan's test for multiple comparisons, and when men and women were examined separately). No differences from the control group were observed when patient samples A and B were collapsed. Cognitive performance on the 'Mini-Mental State' test were correlated with the intracranial area (total sample: $r=0.287$, $P=0.000$; males: $r=0.250$, $P=0.030$; females: $r=0.149$, $P=0.149$). In our samples a family history of dementia, and age or the year of birth bore no significant relationship to the intracranial area. An analysis of covariance demonstrated a significant relationship between the intracranial area and the type of study (study A/study B; $F=12.9$, d.f. $=1,207$, $P=0.000$) even after correction for the covariate gender.

Sample A can be considered as a representative sample of patients with dementia of the Alzheimer type from a well-defined catchment area (Burns *et al*, 1990). Jones & Lewis have remarked upon the non-representative nature of patients who volunteer for special investigations of treatment trials (study B). Therefore we have reason to believe that the intracranial area in representative patient samples with dementia of the Alzheimer type may indeed be lower than in the normal population (and that smaller skull or brain sizes may contribute to the manifestation of dementia in many of the patients with dementia of the Alzheimer type; Katzman *et al*, 1988). If this is true, Jones & Lewis have possibly underestimated the decrease of head size in their patients.

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HANS FÖRSTL
ALISTAIR BURNS
SARAH EAGGER
RAYMOND LEVY

Section of Old Age Psychiatry
Institute of Psychiatry
De Crespigny Park
London SE5 8AF

SIR: We are interested to hear of the suggestion that we may have underestimated the difference between the head circumference of schizophrenic patients and demented patients as the latter might have smaller heads. However, the measurements of Dr Förstl *et al* were of the largest intracranial areas of computerised tomography scan slices, and we cannot be certain that these correlate well with the external measure of head circumference, the latter including additional contributions of skull and scalp thicknesses.

Secondly, the population estimates from the anthropological literature did not differ significantly from our male patients with dementia (Daniel, 1937), nor from our female patients (Fetter, 1969).

We agree entirely that further work on this vexed question must be based on epidemiologically defined populations, and that ideally a normal control group should be used, although this would involve a mismatch for place of residence.

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GARETH H. JONES
JOHN E. LEWIS

Department of Psychological Medicine
University of Wales College of Medicine
Whitchurch Hospital
Cardiff CF4 7XB