Neuroglandular transmission involving these peptides has not been demonstrated electrophysiologically. The long latencies for neurotransmitter and peptide hormone action on pancreatic acinar cells are in marked contrast to the short-latency membrane depolarization and conductance increase evoked in the same cells by some neutral amino acids[6].

O. H. PETERSEN
The Physiological Laboratory,
University of Liverpool,
Brownlow Hill,
PO Box 147,
Liverpool L69 3BX, UK

1. Hartzell, H. C. *Nature* **291**, 539–544 (1981).
2. Nishiyama, A. & Petersen, O. H. *J. Physiol., Lond.* **238**, 145–158 (1974).
3. Gallacher, D. V. & Petersen, O. H. *Nature* **283**, 393–395 (1980).
4. Petersen, O. H. & Philpott, H. G. *J. Physiol., Lond.* **290**, 305–315 (1979).
5. Philpott, H. G. & Petersen, O. H. *Pflügers Arch. ges. Physiol.* **382**, 263–267 (1979).
6. Iwatsuki, N. & Petersen, O. H. *Nature* **283**, 492–494 (1980).
7. Gallacher, D. V. & Petersen, O. H. *J. Physiol., Lond.* **305**, 43–57 (1980).
8. Roberts, M. L., Iwatsuki, N. & Petersen, O. H. *Pflügers Arch. ges. Physiol.* **376**, 159–167 (1978).
9. Davison, J. S., Pearson, G. T. & Petersen, O. H. *J. Physiol., Lond.* **301**, 295–305 (1980).
10. Iwatsuki, N. & Petersen, O. H. *J. Physiol., Lond.* **269**, 735–751 (1977).

Transcurrent faulting and pre-Carboniferous Anglesey

NUTT AND SMITH[1] invoke Devonian transcurrent faulting to explain differences of pre-Carboniferous geology between Anglesey and mainland North Wales. They postulate large dextral movement from proposed geological compatibility between the Lake District and North Wales. We suggest that such movement is unlikely along the only on-land occurrences of the postulated fault in Llyn and Cumbria.

Current sedimentological work by one of us (G.D.T.) in south-west Llyn indicates close similarities in the Arenig sequences across the proposed fault. On both sides, thin granular-pebbly sandstones (dominantly Monian derived) immediately overlie the basal Arenig unconformity, and upper *Didymograptus extensus* zone sedimentation changes from sand to mud-silt dominated, which persists throughout the Llanvirn. Such differences as exist are readily interpretable shallow marine facies variations. The suggested Llyn faultline would truncate continuous Arenig–Llanvirn outcrop, and no alternative seems stratigraphically and structurally acceptable.

In Cumbria, the postulated fault follows the Dent line. Its visible, post-lower Carboniferous displacement is dip-slip only. Post-Downtonian strike-slip faults do parallel this line to the west, but have dominantly sinistral displacement. Significantly, pre-Devonian features appear continuous across the Dent Line. Thus the arcuate Lake District structure continues into the Craven Inliers, and the sedimentary–volcanic Ashgill sequences of the Cautley and Craven Inliers match closely. A more suitable basement fault line is beneath the E–W Craven Fault Belt and perhaps eastwards beneath the Coxwold–Gilling and Helmsley–Filey Fault Belts.

Lake District and North Wales compatibility is equivocal. Their Ordovician correlation is no stronger than would be expected within the same plate tectonic environment. For example, Ashgill lithofacies similarities do not outweigh their imprecise biostratigraphical correlation. The absence of Rawtheyan silicic volcanicity in North Wales is also important. Furthermore, structural arcuation in North Wales has a NW–SE axis whereas that in the Lake District is more N–S. We conclude that, if Nutt and Smith's model is to be viable, some rotation must be invoked, with a revised on-land fault line.

G. D. TEGERDINE
S. D. G. CAMPBELL
N. H. WOODCOCK

Department of Earth Sciences,
University of Cambridge,
Cambridge CB2 3EQ, UK

1. Nutt, M. J. C. & Smith, E. G. *Nature* **290**, 492–495 (1981).

NUTT AND SMITH REPLY—In the Lleyn, the proposed fault between Porth Nefyn and the western side of Hell's Mouth runs to the west of Dinas and curves southwards to the east of Sarn. This line, roughly parallel to the strike[1,2] and sediment drift[3] of the Ordovician rocks, is largely covered by superficial deposits, as Matley's field maps (in the possession of the Institute of Geological Sciences) show. The line does not appear to cross either continuous stratigraphical or structural features. In the southern part of the area, where Matley postulates[2] a fault, the scattered solid outcrops show evidence of contorted strata. We have not had access to Tegerdine's current sedimentological work, but published information indicates substantial differences, commented upon by Nicholas[4], between the Ordovician sequence to the west of the above line[1,5] and those to the east at St Tudwal's[4] and in the area south of Carn Fadryn[2]. In particular, the western sequence contains both acid and basic volcanics with associated intrusives, all of which are unrepresented in strata of equivalent age to the east. According to Crimes[3] the Arenig arenaceous rocks of the Lleyn are essentially derived from the south-west, especially on the eastern side of the proposed fault, and a Monian origin for the sandstones therefore supports rather than detracts from the transcurrent fault hypothesis.

Post-Lower Carboniferous movement along the Dent Line is irrelevant to the argument, but Moseley[6] has shown that many of the Variscan dip-slip faults in the Lake District have a history of strike-slip movement in the Caledonian. Sinistral wrenches in the area are not parallel to the proposed fault, but are northerly trending[6] and probably represent conjugate fractures. We cannot agree that pre-Devonian structures[6] cross the Dent Line. Nor do the Cautley and Craven sequences match as closely as Tegerdine *et al.* suggest; thus the acid tuffs of the Ashgill in the former area contrast with thin beds of tuff and tuffite in the latter and the Borrowdale Volcanics of Cautley are absent in the Craven Inlier. All other factors apart, basement magnetic anomalies[7] show that the Dent Line is to be preferred to a Coxwold–Gilling–Filey line for the proposed transcurrent fault.

We cannot agree that there is incompatibility between the structural arcuation of North Wales and the Lake District before the proposed translation. Subsequent rotation is apparent (see our Fig. 1) because the fault line is not straight.

1. Matley, C. A. *Q. Jl geol. Soc. Lond.* **88**, 238–273 (1932).
2. Matley, C. A. *Q. Jl geol. Soc. Lond.* **94**, 555–606 (1938).
3. Crimes, T. P. *Proc. geol. Ass.* **81**, 221–240 (1970).
4. Nicholas, T. C. *Q. Jl geol. Soc. Lond.* **71**, 83–143 (1915).
5. Matley, C. A. *Q. Jl geol. Soc. Lond.* **84**, 440–504 (1928).
6. Moseley, F. *J. geol. Soc. Lond.* **128**, 561–598 (1972).
7. Institute of Geological Sciences *1:625,000 Aeromagnetic Map of Great Britain*, Sheet 2 (1965).

THE oldest rocks on Anglesey form the Mona Complex[1] which is thought to be the remnant of a subduction complex[2] once active on the south-east flank of the Iapetus Ocean during the earliest Cambrian[3,4]. Dating evidence within the complex is poor, but suggests that the complex is no younger than Lower Cambrian[3]. The oldest rocks exposed on the south-east side of the postulated strike-slip fault[5] are the Arvonian acid tuffs which are succeeded conformably by Lower Cambrian sediments[6] which contain fragments derived from the Mona Complex[1,7]. Some of these fragments are schistose (the highly distinctive Penmynydd Schists)[1] and indicate that deformed and metamorphosed Monian rocks were being eroded and incorporated as clastic debris in the Welsh Basin sediments during the Lower Cambrian. As the Arvonian tuffs show none of the structural and metamorphic complexity typical of the Mona Complex, and as these tuffs grade up in places into the overlying conglomerates of the basal Fachwen Formation[8], it is reasonable to deduce the tuffs to be post-Monian. Thus the Monian subduction system has probably been active in the earliest Cambrian but was certainly uplifted and exposed before the