consideration of alternative paradigms may open up new avenues of research, often with the need to divert resources and technology, and re-train personnel. The study of voluntary motor function has been neglected in basic science while clinicians have focused exclusively on abnormalities of structure as a cause for pain and disability. The idea that abnormalities of neuromusculoskeletal monitoring, programming, and control may be crucial in this field is stimulating some university departments to develop equipment and test hypotheses previously not deemed relevant to the orthopaedic and rheumatological clinicians with whom they usually work. We should remember that it is not data collection that is the foundation of science, but the 'bold conjecture' that Popper,[3] among others, advises should come first lest investigation flounder aimlessly.

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Sir,
Dr Williams's article (October *Journal*)[1] suggested that osteopathic principles could provide a new clinical paradigm for the management of back pain. It was disappointing that a professor of complementary medicine, in his response in the December *Journal*, appears to have overlooked a key point. Without a change in the current paradigm we shall continue to be unable to correctly identify problems presenting with no pathology, nor will we be able to select and validate therapies to which so many patients now turn for help.

The current approach to clinical problems is still essentially based on the principle of causality. We search for pathology. Where we find it, we assume it is the direct cause of the complaint. Where we do not, the problem is categorized as being a functional disorder generated by the mind. However, physiologists have made great strides in advancing our understanding of the complexities and interactions of the nervous system, and have long pointed out the inadequacy of a diagnostic terminology entirely expressed in terms of tissue pathology.

Osteopaths have used the terms 'neuromusculoskeletal system' and 'somatic dysfunction'. These terms indicate both the complex interactions between structures and the nervous system, and the possibility that these relationships may be disturbed to cause dysfunction without apparent pathology. Such disturbances may be considered generally to involve a shift or breakdown in signal processing within the system.

Unfortunately, the commitment to tissue pathology continues to prevent consideration and, ultimately, recognition and use of therapies that are not solely dependent on investigative procedures, such as radiography or readings on a goniometer.

A paradigm shift is long overdue. Only a small one is required. I suggest that, if applied to a biological system with a known non-linear response, its effects may well appear to be beyond belief.

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How should NHS primary care be restructured?

Sir,
The recent White Paper *The new NHS: modern and dependable* presnts an opportunity to reconstruct NHS primary health care (PHC) as a system of 'virtual polyclinics'. Although hospital-focused, the 1991 NHS 'reforms' had considerable implications for PHC. This White Paper offers scope to remedy the adverse consequences while salvaging some positive aspects. Among the latter, diverse models have emerged both from fundholding (total fundholding, multifunds, community fundholding) and from non-fundholding but PHC-led approaches to commissioning secondary care (locality purchasing, GP consortia, practice-sensitive purchasing). Fundholding has apparently stimulated the substitution of primary care for hospital care and strengthened GPs' positions in relation to hospitals.[1] A primary care led NHS has become policy.[3]

Those assumptions recommend implementing 'stage 4' of the White Paper comprehensively, with primary care groups (PCGs) both commissioning hospital services *and* providing PHC. This would at last put the commissioning of hospital services on a single, coherent footing. PCGs should be so constructed that fundholders who wish to can still participate in commissioning secondary services while patients of those who do not can still gain the apparent benefits of fundholding. This implies organizing PCGs around clusters of general practices, as multifunds and GP consortia have been. But GPs, fundholders, and NHS community trusts could also combine as primary care trusts to provide PHC, both directly by managing community services and employing salaried GPs, and indirectly by subcontracting other providers, including independent-contractor GPs. That would create a system of PHC 'virtual organizations' or 'virtual polyclinics', which are in some ways like group health maintenance organizations but without insurance functions,[4] and in other ways like Leningrad-experiment polyclinics but better resourced and more clinically sophisticated.[5]

This approach would create stronger, more coherent PHC providers with GPs playing a central, but not a monopolizing, role. Primary Care Act pilot schemes and health action zones are opportunities to experiment with ways of doing this. Over time, 'virtual polyclinics' could develop into real polyclinics as they acquire buildings, equipment, and other infrastructure of their own, extending recent trends in capital planning for PHC.[6] That would retain the merits of fundholding while reducing fragmentation, and possibly the transaction costs, in commissioning secondary care. Then the attentions of health authorities would have to focus on commissioning PHC, on intersectoral activity, on collaboration with local government, and on consumer advocacy — exactly where it should focus anyway.

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Nurse practitioners

Sir,

The editorial by Koperski *et al* (November *Journal*)[1] represents a comprehensive review of the many issues that need to be resolved in order that nurse practitioners (NPs) can be integrated into general practice. It is a positive contribution to the debate at a time when the United Kingdom Central Council for Nursing, Midwifery, and Health Visiting is about to decide whether the specialist practice framework[2] can embrace NPs.

Since 1993, we have been researching the role of NPs in general practice via the EROS (extended role of staff) project, which was jointly funded by Northumberland Health Authority and the Northern Regional Health Authority. Our report is available (Bond S *et al*, Evaluation of nurse practitioners in general practice in Northumberland, Centre for Health Services Research, University of Newcastle upon Tyne) and addresses a number of the issues raised in Koperski *et al*'s editorial. In particular, it describes the educational programme that proved of fundamental importance in enabling the nurses to develop the higher level clinical skills necessary to diagnose and manage patients presenting in general practice with undifferentiated illness (a summary can be found at www.btinternet.com/~corbridge.health).

This programme was based in four training practices and consisted of the following elements: enthusiastic learners, a GP mentor identified for each nurse, funded protected teaching time, and strong clinical back-up for the nurse when working in the new role, with increasing responsibility for patient care taken as skills developed. Other factors that assisted the process included a clear agreement at the beginning by all partners about the development of the role, good planning, information given to patients and staff about the role, and a supportive primary health care team.

The number of academic courses that currently aim to develop NPs is mushrooming. Unfortunately, it is our experience that clinical skills training represents the weakest link in the educational chain, depending as it does on the goodwill of GPs to provide mentorship and teaching for nurses in the practice. As a result, the time allocated by practices for these essential tasks ranges from negligible to substantial. We feel, therefore, that there is a need to forge greater links between academic institutions providing such courses and local training practices that have the expertise to deliver clinical skills training at a consistent and appropriate level. These periods of training should be funded and of reproducible high quality, with nurses being regarded as trainees.

Practice placements of this type will ensure that the education and training of NPs move in parallel with the development of the role rather than lagging behind it (as happened with practice nurses).[3]

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Sir,

The information about nurse practitioners in general practice given by Koperski *et al* (November *Journal*)[1] is useful for the development of the role of the nurse in primary care. There is sound advice about avoiding problems by planning role responsibilities, job descriptions, protocols, supervision, and much else. If this is followed, it will help to avoid the prolonged gap between the validation of the role in Ontario in 1974[2] and its revival there and in Britain around about 1995. Much of the USA is further down the road with still unresolved problems.[3]

Yet is it all too tentative? The question in the title, 'an inevitable progression?', suggests some reluctance, and there are GPs who 'defend their territory'. It is time to progress. The way forward will be found by sharing overlapping work. Patients know what is needed: time to tell their story, air their worries, and ask their questions. Prescribing is less important. There are plenty of doctors doing that instead of listening carefully and advising wisely.

The way to do this can be found by working with nurses. Nurses may be better with some problems than doctors, and their lack of ready access to drugs may be an advantage. We need to repeat the work of Marsh and Dowes[4] in different settings to confirm their findings and answer some of these questions:

How does the special relationship of nurses with patients differ from that of doctors and how can it be used best? Many consultations require reassurance and education rather than medication. Can nurses do this better than doctors? Will nurse practitioners doing this allow doctors time to listen to patients more themselves and to use their skills for the complex medical problems now being treated at home?

Finally, many disabled people at home need more attention from doctors, which is best given in partnership with nurses, therapists, and other members of the primary care team.[5,6] Some specialized nursing skills may be needed here. Various types of nurse practitioners and specialist nurses are emerging. Their roles overlap with one another and with doctors. None of this is reason for delay. 'Come, my friends, 'tis not too late to seek a newer world'.[7] But it *is* getting rather late.

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Prescribing formularies

Sir,

Following their study, Avery *et al* (December *Journal*)[1] suggest that prescribing formularies in general practice may favourably alter prescribing patterns.