

CORRESPONDENCE

Misidentification or Misunderstanding?

SIR,—The article 'Misidentified Dyke' (*Nature*, 244, 485; 1973) by your geomagnetism correspondent contains the following inaccuracies. (1) The trend of the Wackerfield Dyke is ENE not WNW (Fig. 1). It is important because dyke trends in Northern England have long been recognised as reliable indications of age, WNW for Tertiary and ENE for late Carboniferous (called Carboniferous-Permian before the advent of radiometric age determination). (2) It is not therefore "fairly obvious from field relations that it forms part of the Cleveland-Armathwaite Dyke"; their outcrops are near but their trends are different. The original statement by Tarling *et al.*¹ that "its field relations suggest that it could be part of

the Cleveland-Armathwaite Dyke" is only slightly less misleading. (3) Tarling *et al.* do not claim that the dyke has "always been regarded as part of the Tertiary activity", nor do I know of a publication which does. On the contrary it is unequivocally grouped with the dykes associated with the Upper Carboniferous Whin Sill and equally unequivocally differentiated from the Tertiary Cleveland Dyke in the standard petrographic studies of Holmes and Smith² and Holmes and Harwood³—both quoted by Tarling *et al.* It is also clearly shown as of 'Carboniferous-Permian' age on the Geological Survey one-inch map (Sheet 32: Barnard Castle) published in 1969.

The work of Tarling *et al.* thus con-

firms "long cherished beliefs" rather than requires that they should be discarded. In case it is overlooked, it may be as well to emphasise the real contribution made by Tarling *et al.*—namely the relevance of palaeomagnetic studies in establishing the age of emplacement and subsequent history of intrusions like the Wackerfield Dyke.

Yours faithfully,

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¹ Tarling, D. H., and Mitchell, J. G., *Earth planet. Sci. Lett.*, **18**, 427 (1973).

² Holmes, A., and Smith, S., *Geol. Mag.*, **58**, 440 (1921).

³ Holmes, A., and Harwood, H. F., *Mineralog. Mag.*, **21**, 493 (1928).

Our Geomagnetism Correspondent writes:

Dr Mills is quite right; I have misunderstood. I measured the trend of the Wackerfield Dyke from the Tarling *et al.* map which, because of its small scale, led to the ambiguity now resolved by Dr Mills' larger scale version. Once this point is cleared up, and accepting the points made by Dr Mills in (3) above, it becomes difficult to understand why Tarling *et al.* should say that "its (the Wackerfield Dyke's) field relationships suggest it could be related to the Eocene Mull Dyke Swarm"—a misleading statement which, compounded by my error in the trend, I am guilty of accepting rather too uncritically.

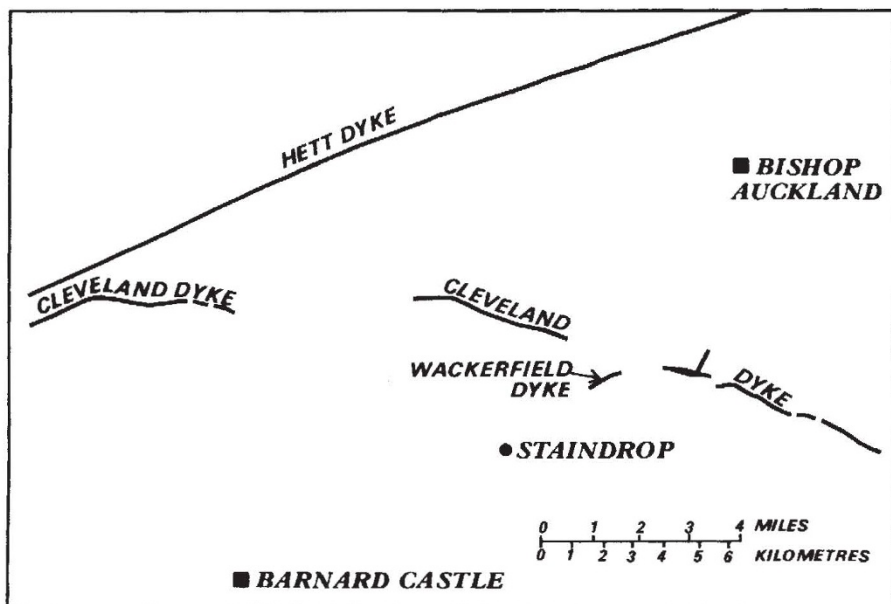


Fig. 1 Map of southern part of Co. Durham showing outcrops of the Hett, Wackerfield and Cleveland Dykes.

Obituary

Professor Jean Hanson

Professor Emmeline Jean Hanson, FRS, Director of the Medical Research Council's Muscle Biophysics Unit at King's College London, died on August 10 of an acute meningococcal infection, at the age of 53.

An only child, she was born in Derbyshire, and was educated at the High School for Girls, Burton-on-Trent, and

at Bedford College in the University of London. After taking her BSc in Zoology, she was engaged in cancer research for two years at the Strangeways Research Laboratory, Cambridge, producing two papers on the histogenesis and differentiation of the mammalian epidermis. She then returned to Bedford College in 1944 with a teaching appointment in the Zoology Department, making a number of histological

and other investigations on several aspects of structure and function in annelids.

The decisive step in her scientific career was her appointment in 1948 to the Biophysics Research Unit, established by the Medical Research Council in the previous year under Sir John Randall, then Wheatstone Professor of Physics at King's College London. She and Randall were put in touch by

Munro Fox, the Head of her Department at Bedford College, and the appointment was as significant for the unit as it was for her. Her wide knowledge of biology was an important factor in a unit where other members had almost all been trained in the physical sciences, and her personal qualities—her energy, her integrity and her helpfulness to others—contributed greatly to the successful development of the unit. The investigations on muscle, which later became one of the chief interests of the unit, were centred on her from the beginning. For the first few years she was the only member of the unit working on muscle, but under her inspiration this side of the unit's activity expanded so that, when the unit was divided after Randall's retirement in 1970, one part became the Muscle Biophysics Unit, and she was appointed as its Director.

Although she held a full-time research appointment, she devoted a large part of her energy to undergraduate teaching at King's College. Not only did she develop courses in Biophysics, both within King's and as part of the inter-collegiate teaching of London University, but she played a key part in the development of the School of Biological Sciences at King's. She often acted as an external examiner, both for undergraduate examinations and for doctoral theses, and made a reputation for sympathetic and conscientious work in this capacity. In 1966, the University of London conferred on her the title of Professor of Biology.

From the time when she first joined Randall's Biophysics Research Unit, almost all of her research was concerned with the structural basis of muscular contraction, and it is for this that she will chiefly be remembered. Her first

attempts at elucidating the changes in the striation pattern during contraction, published in 1952, showed the formation of contraction bands but threw no light on the earlier stages of shortening. Her method, however—observing separated myofibrils under a phase-contrast microscope was used again by her with great success in a period of highly fruitful collaboration with Dr H. E. Huxley. This began in 1953–54, when both of them spent the year in the laboratory of Professor F. O. Schmitt at the Massachusetts Institute of Technology, she as a Fellow of the Rockefeller Foundation. They first established the localisation of myosin and actin in the striation pattern (also done independently at the same time by W. Hasselbach in H. H. Weber's laboratory) and soon afterwards showed the constancy of the distances in the striation pattern corresponding to the lengths of the thick and thin filaments. This was paralleled in part by A. F. Huxley and R. Niederggerke's measurements on living fibres. Together with H. E. Huxley's evidence from electron microscopy and X-ray diffraction, these results formed the chief basis of the sliding filament theory, now universally accepted.

Her later work, much of it in collaboration with Professor J. Lowy, was almost all carried out with the electron microscope. Most of it was related to two problems: the structure of muscles of molluscs and other invertebrates, and the structure of the thin filaments. Hanson and Lowy were the first to obtain isolated thin filaments, and these showed clearly the helical arrangement of the actin monomers. Later work, on which she was still engaged at the time of her death, was concerned with the position of other components of the thin fila-

ments, tropomyosin and troponin.

Aside from her own investigations, she played a very great part by inspiring the muscle team that she gradually built up. Her name appeared on papers only when she had actually taken a major part in the experimental work, but all the other work from the unit, whether electron microscopy, X-ray diffraction or protein chemistry, owed a tremendous amount to her interest, encouragement and criticism, and to her wide knowledge both of the muscle field and of biology in general. Under the influence of her personality, the unit became an exceptionally happy place, where there was excellent cooperation between the members, and where visitors were made welcome.

She was elected to the Royal Society in 1967. She was outstandingly friendly and helpful towards everyone she had to do with, and will be deeply missed by a wide circle of scientific colleagues and other friends. She was unmarried.

Announcements

University News

Professor C. Michael has been appointed to the chair of theoretical physics, **University of Liverpool**.

Dr J. T. Owen has been appointed to the chair of anatomy, **University of Newcastle upon Tyne**. **Professor A. Mitchell** has been appointed to the William Cochrane Chair of Metallurgy and Engineering Materials, **University of Newcastle upon Tyne**.

Professor W. Williams has been appointed Professor of Agricultural Botany, **University of Reading**.

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