

Biographical memoir

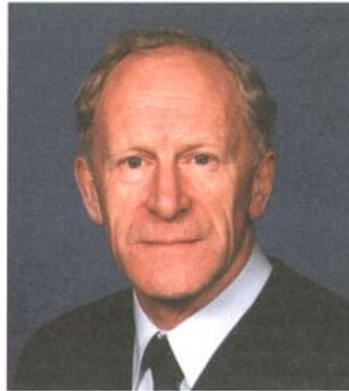
Peter Evans, 1937–2001: A tribute

RUDI DRENT

Viewed from across the choppy and grey North Sea, Peter Evans belongs to that select band of first-rate scientists with a strong affinity with coastal habitats. At an early stage, Peter realised the potential of forming strong international links, with the double aim of advancing knowledge for its own sake but more than that (and perhaps especially) marshalling new insights to preserve these habitats and their inhabitants worldwide. He brought to this mission a rare blend of credentials, having by the age of 29 already defended two doctoral theses. (In 1961, he was awarded a PhD in organo-metallic chemistry from Cambridge and in 1966, after a career shift endowed by the Nuffield Foundation, a D.Phil on bird migration under the supervision of David Lack at the Edward Grey Institute at Oxford.) In his Lackian years, Peter overlapped and interacted with, among others, Ian Newton, Chris Perrins and Tom Royama and he acknowledges the editorial support of the legendary Reg Moreau. Certainly Peter's first bird papers bear the stamp of his incisive style, coming directly to the point – and mincing no words when the question required carcass analysis ("One hundred and twenty (yellow buntings) were caught ... weighed, killed and deep-frozen in polythene bags, until analysis at a later date" we read in *J. Anim. Ecol.* 38: 415, 1969).

The bulk of Peter's D.Phil field research was done in Northumberland and his substantial paper on autumn movements, moult and measurements of the lesser redpoll (*Ibis* 108: 183–216) is noteworthy for its meticulous material and quantitative slant, providing a synthesis for a field that had at that time attracted few adherents. This work, based largely at Monks' House Bird Observatory, completed the imprinting process catalysed by E.A.R. Ennion ("whose enthusiasm for studying and catching shorebirds in NE England ... infected me with a similar deep interest in this group of birds" see *Ardea* 64: 138). Surely, this must have had a strong influence on Peter's decision in 1968 to accept a lectureship in Ecology in the Department of Zoology in Durham, the university to which he remained faithful right to the end (moving up progressively to Reader in 1983, Professor in 1987, and Head of the amalgamated Botany and Zoology Departments 1990–1994, and ending up as Academic Director of both Biological and Biomedical Sciences).

Although Peter's D.Phil project had included a major component of radar observations on migration, when he stayed on at Oxford, he participated in the classic long-term



study of the pied flycatcher initiated in the Forest of Dean by Bruce Campbell. Perhaps this spell of intensive work on known individuals helped to set the stage for Peter's major thrust when he set up shop in Durham, stimulating his students to keep a sharp focus on the individual in its natural surroundings which was soon to entail radio telemetry. In his first decade at Durham, Peter attracted a band of PhD students that swarmed out on the mudflats and chose various waders for intensive study (among others Davidson, Dugan, Pienkowski, Smith and Townshend). At the back of Peter's

mind was the aim to transcend the discussions of "carrying capacity" then in vogue, and achieve a deeper understanding of the links between birds and their resources. This, he maintained, was a problem that "can be understood more easily if viewed from the context of the individual bird, whose patterns of behaviour have evolved to enhance its survival in good nutritional condition from one breeding season to the next" (p. 5, *Coastal Waders and Wildfowl in Winter*, 1984).

Beyond the local university scene, and well beyond the horizon of Seal Sands or Lindisfarne, Peter was a visionary with the conviction that a brotherhood of researchers could transform the study of coastal ecology and bring the realities of environmental degradation to the notice of the responsible authorities. The first step was to provide a vehicle to draw this band of mudflat enthusiasts together, and this was arguably Peter's most lasting achievement. All of us have, at some stage, profited from the unfettered exchanges that were the hallmark of the series of conferences initiated by Peter at the 1972 gathering in Durham (and continued at Liverpool in 1975 and 1979, Switzerland 1977–78 and at Texel in 1981 to mention the runners-up). In retrospect, the special feature of these meetings, originally convened under the somewhat cumbersome title "Waterfowl Feeding Ecology Discussion Group" was the informal and supportive atmosphere. To a very great extent this was attributable to the ebullient optimism of Peter himself who had the knack of drawing out the most promising feature of any and all contributions in the manner, if you will, of the understanding elder brother or chief scout. For me personally, and our group in Groningen, a meeting with David Bryant at Durham was of great strategic importance. Peter had always been interested in employing sophisticated techniques whenever possible, and had prevailed upon David to give us the latest news on the perspectives offered by the doubly-labelled water technique for

Photo: Peter Evans photographed by P.D. Sidney



use in the field. This exposition revolutionised our thinking, and led to the postdoc involvement of Klaas Westerterp from our lab followed soon after by the method's successful transplant to the continent. The technique has since come into its own and has provided an enormous impetus to avian field energetics. We often think back to the somewhat austere ambience of St Aidan's in dreary weather, leavened by Peter's optimism and the explosion of interest generated at the meeting he chaired so effectively.

The Texel meeting had considerable impact because it resulted in a readily available and attractive book, *Coastal Waders and Wildfowl in Winter* (1984, Cambridge University Press), due in no small measure to Peter's tact and perseverance as senior editor. The finished product far transcended the original presentations and achieved a synthesis attractive to the two research traditions that had grown up around waders and wildfowl in winter: not only the pursuit of the individual in its daily routines offering observational opportunities far superior to most other birds, but secondly building a causal bridge to the band of census takers with strong links to specific wintering haunts. The geographic scale of the overview was ambitious to the point of overstretch, but achieved the goal of acting as a signpost to continued expeditionary work. Thus the cover depicts the conundrum of declining foraging time with increasing body mass of the wader assembly at the Banc d'Arguin, one of the points sparking debate at the meeting and leading to eco-physiological work in the years thereafter.

A logical follow-up for Peter's own group was to link up with researchers in northern Norway to explore the ecology of spring stopover in migrating waders resulting in the expeditions of 1985 and 1986 to the Balsfjord. The seven-man team from Durham joined up with ten Scandinavians and had notable success in catching large numbers of knot. These proved to belong to the *islandica* population headed for nearctic breeding grounds (Ellesmere Island) rather than Siberia-bound as previously thought, and representing a secondary "polar" route in addition to the movement through Iceland. The capture of knots ringed originally by the team at Teesmouth must have been supremely exciting to the group in the majestic snow-bound Norwegian fjord. The detailed studies on feeding ecology were linked to the body mass increases achieved, and large samples of knots were collected through the 2–3 week staging period to quantitatively ascertain changes in nutrient stores in the body. This project captured the imagination of other wader addicts and inspired the world-wide upsurge of expeditionary work on stopover ecology. Regrettably, having cajoled six granting agencies into supporting the undertaking, Peter was himself unable to participate on account of a leg injury sustained (of all places) on the university parking lot! In a sense this undertaking and the stream of papers it generated marked the high-water mark of the team Peter had built up in Durham, as about this time it proved impossible to add a scientific officer to the group and inevitably the six post-docs that formed the core drifted away. As he later confided, with his added responsibilities (professorship 1987), Peter found it extremely difficult to rebuild the team. Ironically, as conservation ecology came into its own (generating more textbooks than the parent subject ecology, as Peter pointed out to me at the time) many universities failed to devote adequate resources and the centre of gravity started to shift towards those that acknowledged the importance of the new direction.

To my mind, Peter comes across as a "man with a mis-

sion" combining an affable personality with a sense of urgency that was never far below the surface. His concern for scientific action for conservation and his knack of obtaining large grants in the applied area (notably for studies on the movements of waders through western Europe in order to establish priorities for conservation) no doubt influenced many of those who trained under him to take up a career in conservation biology themselves. A salient example is the intensive period of involvement at Luc Hoffmann's Tour du Valat station in the Camargue where Peter simultaneously coached a PhD (Mike Moser) postdoc (Pat Dugan) and several Master's students on an ambitious individual-based project on heron ecology. The band from Durham (more than 30 PhD students in all) has filled many key positions in international bird conservation and will provide continued leadership over the coming decades as a living legacy of Peter's inspiring trail-blazing example. Honours include the prestigious Godman-Salvin Medal 1995 from the BOU (of which ten have been awarded over the past ten years, see *Ibis* 138: 605–606, 1996) and Peter enjoyed Visiting Professorships in Guelph and Uppsala. Felled by cancer, Peter leaves behind him his wife and two sons (one of whom, Rob, studied biology as well and crops up in the acknowledgements of later papers) and leaves those of us who knew him to regret the loss of what he still had to offer all of us.

Overlapping as he did with John Coulson (another Godman-Salvin medallist) who doggedly pursued his kittiwake and eider studies from Durham University, the era of Peter Evans 1968–2001 helped to bring his university to a pinnacle of international standing in ecology. It is sad to reflect that at the end of the day Durham University withdrew its support for a Professorship in ecology at the systems level, a position Peter had worked very hard to create. Time will tell if the University he served with such distinction and utter commitment will see its way to continuing the research tradition he helped to foster. Assuredly the need to extend the core of pure science vital to the future of the birds and their habitats is more urgent than ever. Readers of this journal do not need to be reminded that "bad ecology leads to bad public policy" (Ludwig, *TREE* 9: 411, 1994) so we need to band together to keep up the pressure. This jubilee number is a fitting tribute and reaffirmation of dedication to the long-term.

PETER RICHARD EVANS: LITERATURE CITED

(a) Biographical

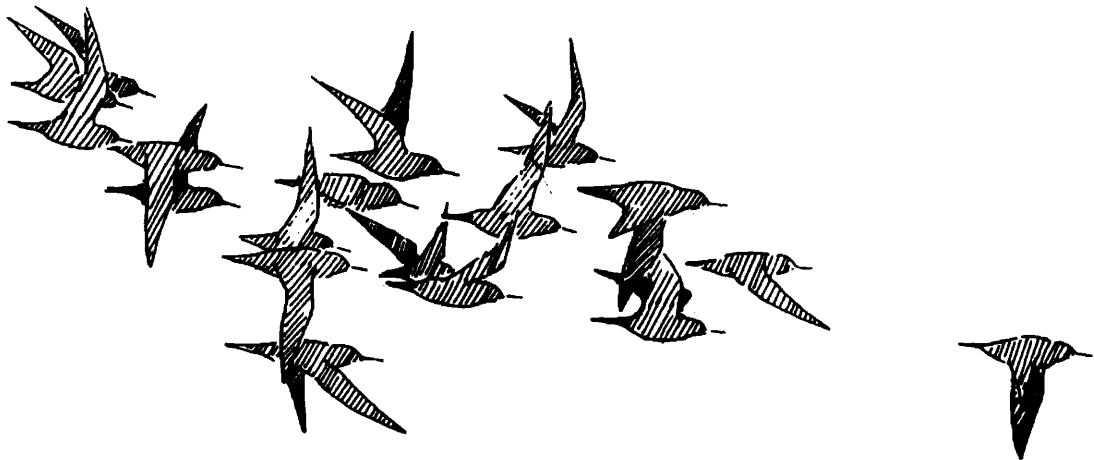
- Anon. 1996. Godman-Salvin Medal: Peter R. Evans. *Ibis* 138: 605–606.
 Bowler, C. & Thomas, C. 2001. Peter Richard Evans (1937–2001). Obituary, Durham University.
 Perrins, C. 2002. Peter Richard Evans 1937–2001, *Ibis* 144: 713–714.

(b) Chronological selection of major contributions by P.R. Evans to avian ecology

- Evans, P.R. 1966a. Autumn movements, moult and measurements of the lesser redpoll *Carduelis flammea cabaret*. *Ibis* 108: 183–216.
 Evans, P.R. 1966b. Autumn wader migration in Northumberland and Durham. *Ibis* 108: 457.
 Evans, P.R. 1969a. Ecological aspects of migration, and pre-migratory fat deposition in the lesser redpoll, *Carduelis flammea cabaret*. *Condor* 71: 316–330.
 Evans, P.R. 1969b. Winter fat deposition and overnight survival of yellow buntings (*Emberizacitrinella* L.). *J. Anim. Ecol.* 38: 415–423.
 Evans, P.R. 1973. Avian resources of the North Sea. pp. 400–412 in Goldberg, E.D., North Sea Science, M.I.T. Press, London.
 Evans, P.R. & Smith, P.C. 1975. Studies on shorebirds at Lindisfarne,



- Northumberland. 2. Fat and pectoral muscle as indicators of body condition in the bar-tailed godwit. *Wildfowl* 26: 64–76.
- Evans, P.R.** 1976. Energy balance and optimal foraging strategies in shorebirds: some implications for their distributions and movements in the non-breeding season. *Ardea* 64: 117–139.
- Evans, P.R., Herdson, D.M., Knights, P.J. and Pienkowski, M.W.** 1979. Short-term effects of reclamation of part of Seal Sands, Tees-mouth, on wintering waders and shelduck. *Oecologia* 41: 183–206.
- Evans, P.R.** 1981. Reclamation of intertidal land: some effects on shelduck and wader populations in the Tees estuary. *Verh. Orn. Ges. Bayern* 23: 147–168.
- Evans, P.R. & Pienkowski, M.W.** 1984. Population dynamics of shorebirds, pp. 83–123 in J. Burger & B.L. Olla (eds), *Shorebirds: Breeding Behaviour and Populations*. Plenum Press, New York and London.
- Davidson, N.C. Evans, P.R. Uttley, J.D.** 1986. Geographical variation of protein reserves in birds: the pectoral muscle mass of dunlins *Calidris alpina* in winter. *J. Zool. Lond.* 208A: 125–133.
- Evans, P.R., Davidson, N.C., Uttley, J.D. & Evans, R.D.** 1992. Pre-migratory hypertrophy of flight muscles: an ultrastructural study. *Ornis Scandinavica* 23: 238–243.
- Evans, P.R., Hafner, H. & L'Hermite, P.** 1983. *Shorebirds and large waterbird conservation*. Commission of the European Communities, Brussels.
- Evans, P.R., Goss-Custard, J.D. & Hale, W.G.** 1984. *Coastal Waders and Wildfowl in Winter*. Cambridge Univ. Press for the British Ornithologists' Union, pp. 1–331.
- Pienkowski, M.W. & Evans, P.R.** 1985. The role of migration in the population dynamics of birds, pp. 331–352 in Sibly, M. and Smith, R.H. (eds) *Behavioural Ecology: Ecological consequences of Adaptive Behaviour*. Blackwell, Oxford.
- Evans, P.R. & Davidson, N.C.** 1990. Migration strategies and tactics of waders breeding in Arctic and north temperate latitudes, pp. 387–398 in Gwinner, E. (ed) *Bird Migration: The Physiology and Ecophysiology*. Springer, Berlin.
- Evans, P.R.** 1991. Seasonal and annual patterns of mortality in migratory shorebirds: some conservation implications, pp. 346–359 in Perrins, C.M. et al., *Bird Population Studies: Relevance to Conservation and Management*. Oxford Univ. Press.
- Scott, I., Grant, M. & Evans, P.R.** 1991. Estimation of fat-free mass of live birds: use of total electric conductivity (TOBEC) measurements in studies of single species in the field. *Funct. Ecol.* 5: 314–320.
- Evans, P.R.** 1992. The use of Balsfjord, North Norway, as a staging post by knots during spring migration: fat deposition, muscle hypertrophy and flight strategies. *Wader Study Group Bull.* 64: Supplement pp. 126–128.
- Scott, I. & Evans, P.R.** 1992. The metabolic output of avian (*Sturnus vulgaris*, *Calidris alpina*) adipose tissue, liver and skeletal muscle: implications for BMR/body mass relationships. *Comparative Biochem. Physiol.* 103A: 329–332.
- Percival, S.M. & Evans, P.R.** 1997. Brent geese *Branta bernicla* and *Zostera*; factors affecting the exploitation of a seasonally declining food resource. *Ibis* 119: 121–128.
- Percival, S.M., Sutherland, W.J. & Evans, P.R.** 1998. Intertidal habitat loss and wildfowl numbers: applications of a spatial depletion model. *J. Appl. Ecol.* 35: 57–63.



This drawing by Jos Zwarts of knots in flight illustrated one of the reports in the *Wader Study Group Bulletin* of the Durham University expeditions to Balsfjord in northern Norway that were instigated by Peter Evans.

