Austin, W.E.N. and C.R.Warren. **2016.** A Special Issue Celebrating the Career of Professor Colin Ballantyne, MA, MSc, PhD, DSc, FRSE, FRSGS, a Uniquely Scottish Geomorphologist. *Scottish Geographical Journal* 132(2): 119-129.
DOI: 10.1080/14702541.2016.1157380

Colin Ballantyne in Reindalen, Svalbard, April 2015

This special issue of the *Scottish Geographical Journal* marks the retirement of Professor Colin Ballantyne from the University of St Andrews on 31st January, 2015 after 35 years. In May 2015, a one-day seminar was held in St Andrews at which some of Colin's colleagues and long-term collaborators presented papers, after which there was a reception during which Colin was presented with the Royal Scottish Geographical Society's Coppock Research Medal in recognition of his outstanding research contribution (Figs. 1 & 2). Several of the presentations from that event are now presented as papers or extended abstracts in the present special issue, the content of which reflects the range of Colin's diverse research interests. At the end of this editorial there follows a list of his primary research publications, demonstrating the remarkable quality and quantity of his research output over four decades.

FIGURE 1. Presenters at the one-day seminar in St Andrews in May 2015. From left: Mike Walker, Julian Murton, Dave Evans, Doug Benn, Colin Ballantyne, Derek Fabel, John Lowe, Danny McCarroll and James Scourse.

FIGURE 2. Colin Ballantyne (left) receiving the Coppock Research Medal of the Royal Scottish Geographical Society from Mike Robinson, RSGS Executive Director.

Colin Ballantyne was appointed Lecturer in Geography at the University of St Andrews in January 1980, was subsequently promoted to Senior Lecturer in Geography and Geology in 1987, and appointed Professor in Physical Geography in 1994. Between 1985 and 1995 he was Warden at McIntosh Hall, a student hall of residence, a period which provided him with a fund of entertaining stories about student 'goings on' which he had to deal with. In 1996 he became Deputy and Acting Head of the School of Geography and Geosciences, taking on the role of Head of School from 1998 to 2000. Between 2007 and 2012, he was Director of Research in the School of Geography and Geosciences. Although based at St Andrews throughout his career, Colin has also been a visiting Lecturer at the University Centre in Svalbard (UNIS) since 2000 and twice an Erskine Fellow at the University of Canterbury in New Zealand, where he continues to be involved in summer school teaching.

Colin first developed his lifelong interest in Quaternary science and geomorphology at the University of Glasgow under the tutelage of the late Rob Price. Attainment of a First Class Honours MA degree enabled him, with Price's encouragement, to undertake an MSc degree at McMaster University in Canada, where he joined a team led by Brian McCann studying high arctic hydrology and fluvial processes. Two long field seasons in the high arctic stimulated his enduring interest in periglacial environments, and on returning to Scotland to undertake his PhD under the supervision of Brian Sissons he chose to study the periglacial processes and landforms on mountains in NW Scotland.

Three main research interests have dominated a research career spanning 40 years. Firstly, as the bibliography below attests, he has contributed extensively to the literature on periglacial landforms and processes, and has published widely-cited papers on such diverse phenomena as blockfields, protalus ramparts, ploughing boulders and plateau-top aeolian sand deposits. His work on periglacial phenomena led to his collaboration with Charles Harris in writing *The Periglaciation of Great Britain* (Cambridge University Press, 1994), which set the agenda for periglacial research in the British Isles for the next two decades. A second major focus has been the reconstruction of former glaciers and their palaeoclimatic implications, particularly with regard to glaciers that formed during the Younger Dryas period in Scotland, work that included single-handedly field mapping and reconstructing former glacier limits on all the major Hebridean islands between Orkney and Arran. A combination of his periglacial expertise with interest in Late Pleistocene glaciation led to research on the dimensions of the last British Irish Ice Sheet, and in

particular the possibility that the former ice sheet surface might be represented by trimlines that mark the upper limit of glacial erosion. Although initial research based on trimline mapping and analysis of clay mineralogy (together with the earliest ^{10}Be exposure ages reported in Scotland) appeared promising, this ultimately proved a false dawn; conflicting evidence accumulated and by 2005 Colin and his co-workers had accepted that trimlines represent englacial pressure thermal boundaries within former ice sheets that overtopped all mountains in Britain and Ireland. This alternative model was elegantly demonstrated in a groundbreaking paper on the exposure age of high-level erratics by Colin and Derek Fabel in 2012. The story of this dramatic turnaround in data interpretation is insightfully told by Danny McCarroll in his 'trimline trauma' paper in this issue.

Colin's international reputation was augmented by the publication of a long review paper in *Quaternary Science Reviews* in 2002. Entitled simply *Paraglacial Geomorphology,* this paper amassed a vast body of evidence to demonstrate that the trajectory of Holocene landscape change in formerly glaciated environments has been modified and often dominated by the influence of the preceding glacial episode, and encapsulated paraglacial landscape change in terms of the reworking of non-renewable sediment stores over timescales ranging from decades to millennia. This paper and its associated concepts 'went viral'; the paper has received over 600 citations and spawned a remarkable body of work that employed his ideas to evolve a paradigm of paraglacial landscape modification to explain post-deglaciation landscape evolution. Colin continued to investigate the nature and effects of deglacial inheritance, primarily through a remarkable programme that involved exposure dating of 31 catastrophic rockslides in Scotland and Ireland to demonstrate that over 90% occurred within 5ka of deglaciation, and that kinematic release in many cases probably reflected seismic activity associated with glacio-isostatic uplift.

As the above account suggests, Colin's research interests are difficult to summarise. His record of over 150 published papers (mostly as single or senior author) plus over 50 chapters in books and field guides includes a remarkable diversity of material, ranging from papers on orientation statistics, clast shape analysis and climatic gradients to experiments on patterned ground generation to recent reassessments of the dimensions and deglacial chronology of the last British-Irish Ice sheet. The combination of his mountain-orientated research interests and his passion for hillwalking has kept him extremely fit, enabling him not only to climb all the Scottish Munros twice (and many of them three or more times), but to ascend Kilimanjaro (on the summit of which he proposed

to Rebecca, his wife!), to climb a good number of Norway's 2000m peaks, to ascend Mount Elbrus with Chris Bonnington, and to scale numerous other mountains in European and New Zealand mountain ranges. There can be few geographers who have covered more 'mountain miles' or ascended a greater total altitude than Colin.

Over many years Colin Ballantyne has loyally served the University of St Andrews and has been one of the key architects of the Department's remarkable climb in the excellence rankings of the UK RAE and REF Geography league tables. He was responsible for the submission in all but one RAE, and for the Environment Statement in the REF2014. More generally, he has been a champion of Scottish geography, and has published numerous papers in this, the journal of the Royal Scottish Geographical Society (RSGS). The quality and originality of his research work has been recognized in numerous awards and prizes, including the Warwick Award of the British Geomorphological Research Group (1987); the RSGS's President's Medal (1991), Newbigin Prize (1992) and Coppock Research Medal (2015); the Wiley Award of the BGRG (1999), the Saltire Science Medal in Earth Sciences (1996) and the Clough Medal in Earth Sciences (2010). In 2015 he was awarded the prestigious Lyell Medal by the Geological Society of London. He was elected Fellow of the Royal Society of Edinburgh in 1996 and awarded the degree of D.Sc. by the University of St Andrews in 2000.

Colin is not one of those academics who prioritises his research career to the exclusion of all else. In addition to his extensive administrative service in leadership roles, he has always cared deeply about teaching and has carried an above-average teaching load. Through his lecturing, he has inspired generations of students with his uniquely engaging mix of precision accuracy, clear explanations and idiosyncratic humour, and his teaching has perennially been given top ratings in student evaluations. On fieldtrips he is in his element, leading from the front with infectious enthusiasm, and his annual Honours field courses in Norway (on one occasion including the future Duke of Cambridge) have been the highlight of many students' degree experience. In his supervision of undergraduate research, he typically 'went the extra mile', and this resulted in a steady stream of First Class dissertations, several of which subsequently formed the basis for co-authored papers (the latest of which will be published in SGJ later this year). A number of his PhD students have gone on into research and teaching positions. He expects high standards, and in this he practises what he preaches, always striving for excellence himself.

This *festchrift* collection comprises five papers and extended abstracts written by collaborators, colleagues and friends of Colin, the articles all relating to aspects of his research interests. The first is written by **Danny McCarroll** who spent many summers with Colin in the Scottish and Irish mountains investigating glacial trimlines. His paper on '**Trimline trauma**' reflects with insight and honesty on the paradigm shift from interpreting trimlines as marking the surfaces of former ice sheets to the later realisation that many trimlines represent englacial thermal boundaries. It is a disarmingly frank and thought-provoking cautionary tale. In a related vein, **Dave Evans** discusses '**Landscapes at the periphery of glacierization**', using case studies from the UK (Isles of Scilly, Dartmoor) and arctic Canada (Banks Island) to explore how former interpretations of 'ice free' areas around the margins of former ice sheets have been challenged by the discovery of subtle signatures of glacial modification. It seems that there were more peripheral ice masses than we once thought. There follow contributions from two of the UK's most distinguished Quaternary scientists, Mike Walker and John Lowe. **Mike Walker** provides an interesting history of the INTIMATE programme - Integration of Ice-core, Marine And Terrestrial records. '**INTIMATE 20 years on**' charts the remarkable achievements of this international research collaboration and points the way forward. **John Lowe's** extended abstract describes the emergence and development of '**Volcanic ash stratigraphy**' as an increasingly powerful dating tool which is helping to elucidate the details of glacial history. This is especially true in Scotland where a steadily growing database of Icelandic cryptotephra layers provide critical isochronous marker horizons through the late-glacial/Holocene transition. The collection is completed with an extended abstract by **Julian Murton**, '**Late Pleistocene cold-climate loess deposits of Beringia**', which connects directly with Colin Ballantyne's longstanding interests in periglacial processes. This contribution summarises recent work on the *yedoma* of the Beringian lowlands and foothills, controversial wind-blown silt deposits which are now set to provide detailed records of Late Pleistocene environmental history. They also contain vast stores of preserved organic carbon, now vulnerable to climate warming in the high Arctic.

Colin Ballantyne has set a remarkable example of an academic life lived to the fullest degree. His contribution and lasting legacy to physical geography at the University of St Andrews has recently been secured through new appointments to the Department of Geography and Sustainable Development, including three new professorial appointments in physical geography. Following his retirement and his appointment as an Emeritus Professor of the School of Geography and Geosciences, there is no sign that he plans to

slow down. He continues to contribute actively to teaching and to publish top-flight papers, and he is close to completing his much anticipated *magnum opus,* a state-of-the-art book on periglacial geomorphology that is likely to be the standard text for many years to come. Moreover, he is co-organising and leading the 2016 QRA Spring Field Meeting in the Isle of Skye. Consequently, there is every likelihood that the community will continue to have the benefit of Colin's insightful research, inspirational teaching and inimitable anecdotes for a good long while. To conclude on a personal note, we count ourselves fortunate to be colleagues of his, and we wish him well.

Professor Bill Austin, Head of Department of Geography & Sustainable Development
Dr Charles Warren, Co-Editor, Scottish Geographical Journal

St Andrews, March 2016

Colin Ballantyne
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