THE FOUNDING OF THE GEOLOGY DEPARTMENT
AT KEELE UNIVERSITY:
MEMORIES OF THE FIRST FIVE INTAKES 1950-1958
Based on the recollections of former Staff and Students

COMPILED AND EDITED

BY

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AND
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Produced under the auspices of the North Staffordshire Group
of the Geologists Association of London
Keele; Staffordshire; October 2006

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Mr Terry G. Miller: Senior Lecturer 1953-65

Dr Frank Moseley: Assistant Lecturer: Lecturer 1951-54

Dr Maurice Stone: Assistant Lecturer; Lecturer 1953-59

Dr Colin S. Exley: Lecturer; Senior Lecturer 1957-1985

Dr Edward M. Yates: Lecturer in Geography (Geomorphology) 1951-55

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Margaret Float (Née Blake): Honours Student (Geology & Geography) 1950-54

Philip H. Herman: Honours Student (Geology & Physics) 1950-54

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PREFACE

Late in 2005, having retired from the Science Education section of Keele University nearly ten years ago, the author was prone to reflect on how much he had been indebted throughout his professional and social life to the Geology Department and its staff in the early days of the University College of North Staffordshire. Since it was clear that a definitive or official history of the department had not been, and would not be, commissioned in the foreseeable future, it was felt that a booklet such as the present one, covering the years 1950-54, 1951-55, 1952-6, 1953-57, 1954-58, and containing light-hearted but seriously considered memories of the first five intakes of the department, might be favourably received. Informal permission to proceed was sought from professor John Winchester, then the Head of the School of Earth Sciences and Geography, who offered encouragement and wise counsel regarding the potential pitfalls of such a venture.

Thus encouraged and forewarned, the writer approached Colin Exley as a potential co-editor and received an enthusiastic response. Likewise he contacted Terry Miller, Frank Moseley and Maurice Stone and met with equally warm support. Sadly it emerged that some former members of staff, apart from Professor Wolvers on Cope (1912-2000), had passed away: Robert Barrass, Tom Burnaby, Chris Barron, Audrey Naylor, Patricia Yates, Peter Shelford, Dennis Leverett and possibly Alec Trendall. Fortunately Professor Cope had, however, left an account of the context and experiences of these early years in three sources: Cope (1970), Drakakis-Smith (1998) and Exley & Thompson (1999).

A sample of former students still known to the writer and his friends soon proved to be equally keen to provide memories of their years at UCNS: John Thomas, Philip Herman, Eddie Derbyshire (1950-54); Allan Lees and Philip Braithwaite (1952-6); Mary Bianco (née Becker) (1953-7) in particular. Through the good offices of John Easom and Hannah Crush of the Alumni Office, it was possible to contact all those former Principal Honours Geology students who had graced the department at some time in the first eight years of its existence 1950-1958, but only for those whose addresses were known. Thus a draft proposal was sent to some 60-70 or so students (not all graduates) and six former members of staff. I was warned to expect only a 10-20% response.

The headings set down below were provided as spurs to the retrieval of appropriate memories. It was hoped that these prompts might also provide the editors with some degree of unity in coping with different styles of writing and varied experiences. The use of such headings and others by some contributors allows a small measure of individuality to emerge in the responses.

- Background pre-1950-54;
- Interview/appointment procedure;
- An appraisal of the content and influence of the Foundation Year;
- Extra-curricular university life; student societies;
- Vacation experiences;
- Administrative responsibilities; pay and conditions;
- Housing/accommodation; building restrictions;
- Staff/student relations;
- Keele as a marriage bureau;
- Subsequent career in brief;
- Overall reflections on Keele’s contribution to university education.

A length of c.2000 words, excluding photographs was suggested, but only as a guide. Replies were received from one Subsidiary and eleven Principal Geology students and from all six former staff (if we include John Thomas). Outline headings of a probable Introduction to the booklet were also provided so that contributors would appreciate the wider context of the founding of the College and its Geology Department.

In the account which follows, the reader is warned that, by the very nature of the enquiry, strict historical accuracy cannot be guaranteed. Nevertheless it is claimed that the spirit and ethos of those early formative years has come through strongly. The editors welcome corrections, additions and discussion which should be sent to D.B.Thompson at the address cited subsequently in the booklet. Any surplus accruing from the sale of the booklet will be offered to a cancer charity.
ILLUSTRATIONS

**Figure 1.** The Reverend Thomas Horwood, Queen Elizabeth and Lord Lindsay of Birker.  
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**Table 1.** A typical timetable and curriculum of a student at the UCNS 1950-54.

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INTRODUCTION

The political and educational context in North Staffordshire prior to 1950.

Keele University started life as the University College of North Staffordshire (Mountford 1972; Kolbert 2000). Since the late 19th Century there had been repeated requests for the establishment of a university in the Potteries in part based on the upgrading of the existing and prestigious Central College of Science and Technology (founded 1914) and the growth in the area of a vigorous network of University Extension courses, WEA and other classes covering a wide range of academic subjects. The technical college incorporated first-rate departments of ceramics and mining and a strong geology section led by J.T. Stobbs who had a long-standing friendship with geologist and mine manager John Cadman of Silverdale, Professor of Mining Engineering and Petroleum Technology at Birmingham University (ennobled in 1937). The WEA and Extramural classes were taught on week nights, weekends and in summer courses by such distinguished peripatetic and resident teachers as R.H. Tawney, the economic historian, and William Whitehead Watts, the geologist, later of Imperial College, London, and Birmingham University, who began his career in the area before 1900 (Thompson 2000). In later years there were contributions from the humanities by Lord Lindsay of Birker, for 25 years Master of Balliol College 1924-1949, Vice-Chancellor of Oxford University 1935-1938, and a member of the House of Lords from 1945. He developed a great respect and liking for the people of the Potteries and clearly wished to do well on their behalf. Meanwhile many of the more substantial geology classes were guided by Stobbs himself (of whom it was said that "We never had a better teacher") and later, from the 1930s, by John Myers of Wolstanton Grammar School (Thompson 2000).

At the end of the 1939-45 war there were 19 universities in the United Kingdom, of which several were fledgling university colleges whose students followed a curriculum and sat the finals examination papers set externally by London University. In such places, Geology departments were often small e.g. that at Leicester (staffed by J.D. MacWhittaker, Prof. Sylvester-Bradley and Dr Trevor D. Ford). Even established universities which had shed the yoke of London were equally modest e.g. Reading (Prof. Hawkins, Dr Percy Allen and Phoebe Walder). It was rumoured that only c.4% of the school population were attending universities in the late 1940s.

When, in 1946, an Exploratory Committee was formed in the Potteries, the movement for a University College of North Staffordshire gathered pace and it entered into negotiations with the University Grants Committee led by Sir Walter Moberly. It was clear that the leader of the exploratory movement was Lord Lindsay (Figure 1), a distinguished philosopher who, coming from a Scottish background of 4

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and a headquarters of the regional Home Guard. The Hall, sundry brick buildings, c.100 other huts (two of triple NAAFI units; Figure 2) were in various stages of terminal decay. Nevertheless they offered the possibility of being converted into administrative, teaching, research and residential accommodation for both students and staff.

Figure 1. The Reverend Thomas Horwood ("The Vicar", on the left; Her Majesty, Queen Elizabeth in the centre and Lord Lindsay of Birker, the College Principal (known as "The Master") on the right, at the Official Opening of the University College of North Staffordshire; 17th April 1951. (Photograph courtesy of Routledge & Kegan Paul).

Figure 2. An overview of the centre of a model post-war (?Oxbridge) University College: the campus of the University College of North Staffordshire as photographed in the early 1960s. On the right are the large, semi-circular, ex-army, triple Nissen Huts. At various times between 1950 and 1957, one or more of these served as the Students' Union, the Refectory/Dining Hall, the Chapel, The Sports' Centre, and the Foundation Year Lecture Hall. Beyond them are "The Mens' Huts", the first six of a line of 40 students' accommodation units. These are aligned east – west along "Sunset Boulevard". In the foreground, left, is The Campus Shop, formerly the soldiers' NAAFI shop, which was managed by Mrs Dale and geology student John Edmund Thomas between 1950 and 1954. In the distance is the road leading northwards to North Lodge of the Keele Estate where Head Porter Wainwright lived in majestic fashion. (Photograph courtesy of Keele Information Services and John Kolbert).
This was a post-war version of an Oxford collegiate environment where 90+ % of lecturers and support staff and their families, as well as undergraduates, would share a rich corporate and intellectual life, albeit at the risk of being dubbed "The Kremlin on the Hill" by local bus conductors. A further unique feature was that, for the first time in UK universities, the percentage of female students was planned to approach 50% of the intake, thus breaking the mould and tapping a rich vein of talent (Figure 3). The experiment was to be both collegiate and coeducational - a model of a democratic society.

Progress was not always smooth. There proved to be a problem over the appointment of a Vice-Chancellor; favoured candidates declined Lindsay’s approaches, before Horwood, “The Vicar”, persuaded Lord Lindsay himself, “The Master”, whose health was not good at the age of 70, to become not only the guiding spirit but the first Principal. This task he accomplished with avuncular aplomb. The vision was put into practice - a guiding hand here, a steely determination there - with an enviable ability to treat all categories of staff, students and families with a degree of personal interest which was simply charming; a great man in so many ways (Gallie 1960).

From the moment the college began to take shape, a geological inheritance began to influence matters. The interbedded red sandstones and mudstones of the Keele Beds (Upper Carboniferous, Westphalian C & D), not to mention the thin skin of boulder clay on top (Devensian?), were omnipresent. In the face of incessant rain, snow and bitter winds the official paths and grassy byways became quite glutinous and unforgiving. At times mere survival was threatened. Thus many years later the staff and students of 1950-51 - the true pioneers - qualified to receive as a memento a half-scale ceramic copy of a pair of wellington boots crafted by a porter (a former master moulder) and Michael Paffard (of the Education Department; see Figure 4).

**The evolution of a distinctive university curriculum 1946-50.**

Lindsay had a skeleton curriculum in mind as he approached relatively youthful but aspiring lecturers of his acquaintance at Oxford, Manchester, Glasgow, London, Cambridge and elsewhere and invited them to make applications to join the administrative and academic nucleus of a new and very different university. A librarian was appointed, and key members of the administrative and academic staff, the latter mostly of professorial rank, were assembled. The Prospectus (Anon. 1950) states that a Reader in Geology was yet to be appointed.

Very soon Dr F. Wolverson Cope (King’s School, Macclesfield and Manchester University; D.Sc. for work on the Carboniferous Limestone) read a newspaper advertisement for the establishment of a Geology Department at UCNS (see Prof. Cope’s account in this booklet). He appears to be an exception in that he was not head-hunted by Lindsay. At the time he was a Principal Geologist of the Geological Survey of Great Britain (Figures 10 & 11). He was well known locally for his war-time work in solving local geological problems related to the extraction of coal, brick clay, bentonite, whetstones, building stone, aggregates and natural gas (methane). His superiors at the Survey and in DSIR were aghast at the possibility of his departure and hinted at the loss of his civil service pension rights etc. (Cope in Exley & Thompson 1999, p.12). Nevertheless he allowed his name to go forward. He was offered and accepted the Headship of the Department of Geology, though not at first at Professorial level, in the group of subjects headed Experimental Sciences. Perhaps Sir Arthur Trueman FRS, Vice-chairman of the UGC 1946-49, Chairman 1949-53, had made sure that geology was included in the first batch of appointments, for he was keen to introduce the general public to the contribution of geology to economic welfare and an appreciation of the natural world. He had recently produced two very popular books, “Introduction to Geology” (1948), “Geology and Scenery” (1950) and was soon to co-operate with Dr Cope and others in offering a much more academic treatise on “The Coalfields of Great Britain” (1954).

In between fulfilling obligations in their current institutions, the academic staff began to devise a novel university curriculum in the light of Lindsay’s vision. It was soon agreed that there would be a 4-year-long course consisting of a general and unique Foundation Year followed by 3 years’ study of not one but two (or rarely 3, e.g. PPE: Politics-Philosophy-Economics) Principal subjects to Honours Degree standard. These subjects were to be supported by the choice of three year-long Subsidiary subjects. Eventually study for a Teaching Diploma, involving work over all three years of the Honours course was allowed to count as a Subsidiary subject. All these studies were to be selected in such a way as to ensure continuing breadth and integration of approach across the Humanities, the Sciences and Social Sciences (see the Table). There were to be no 3-year degree courses and no single honours courses. Surprisingly, perhaps, at a time of considerable hardship, Local Education Authorities were willing to provide grants and scholarships for the “extra” year.
The aims and content of the Foundation Year 1950-51; the geological contribution.

Eventually the composition of the Foundation Year was agreed. It was to consist of three parts:

i. a Lecture programme which all students were expected to attend, discuss and read around;

ii. the study of three term-long "Tutorial" subjects of c.2hrs teaching time per week and

iii. the study of two year-long "Sessional" disciplines of up to 6hrs duration including 2-4hrs of lab. work.

iv. later on, attendance and contribution to Discussion Groups.

Figure 3. A photograph of the archetypal, forward-looking, the sky's the limit, female university student of the 1950s and 1960s. This image was used by the college in its recruitment literature for many years. The photograph is of Mavis Fox (née Wilson), a Geology and Geography student of the 1950-54 vintage. (Photograph courtesy of Keele Information Services).

The choosing of these components was governed by a requirement to include elements of the Humanities, the Sciences and the Social Sciences. The wide-ranging Lecture programme (304 talks in all in 1950-51; somewhat fewer later) was to be delivered as two contributions each weekday morning including Saturdays. There were to be three broad themes: the Development of Western Civilisation (96 lectures in the autumn term); Man and his Environment (111 lectures largely in the Spring term) and the Origins and Inheritance of the Industrial Revolution (97 contributions in the Summer Term). In true Scottish tradition, Lindsay was insistent that this introductory lecture course was to be delivered by the Professors and Heads of Departments - the most distinguished scholars at hand. In later years several of the scientists were to add a measure of showmanship to their presentations.

Additionally, the course required the study of year-long Sessional and term-length Tutorial subjects. The choice was governed by a requirement to sample sessional disciplines which had not been studied at school (which proved to be very successful) and merely to keep in touch with terminal subjects of which the student had some
acquaintance and were thought to be future Honours Degree choices. Strangely the latter did not work out well in practice (Mountford 1972). In the event, under a system which allowed complete freedom to choose one’s own Honours Degree curriculum, it was estimated that in the 1950-54 cohort of students - 159 strong but 140-odd surviving to graduate - 40% chose to change both intended Honours Degree subjects and 60% decided to change one likely discipline. (Slightly smaller percentages were reported officially in later years). If such free choice were to be replicated across all universities, think of all the square-peg-in-round-hole students who potentially existed in the university system! Out of this potential curricular mayhem there is no doubt that departments in UCNS had to keep on their toes and think deeply about not only the content and the delivery of their cross-disciplinary offerings but their contribution to a liberal education of a unique kind. In the event there was free choice and students exercised their right and several surprises emerged; geology gained considerably and no doubt this led to the conferring of a Professorship on Dr Cope in 1953. Biology and Psychology likewise appeared to gain ground. No fewer than 24 students chose to start the Geology Honours course in 1951 (but only 19 graduating in 1954), 11 graduating in 1955, 13 in 1956, 13 in 1957, 17 in 1958. As a proportion of the overall intake, and compared with

![Wellington boots](image)

**Figure 4.** A ceramic model, half size, of a pair of Wellington boots of the type commonly worn by staff, students and whole families on the campus in the uncommonly wet and muddy early days of UCNS. They were crafted by Michael Paffard (formerly Senior Lecturer, Education Department) and a porter who had previously been a master moulder in the Pottery Industry. (Photograph courtesy of Mike Hatton).

the size of Honours classes in many of the older universities, this was a large department. By 1969-70 the numbers had grown to 60 Principal, 83 Subsidiary and over 100 Foundation Year students. By 1970 there had been 195 geology graduates i.e. 3.2% of the whole cohort (Cope 1970; Mountford 1972 p.178).

Discussion Groups were introduced in the autumn of 1954. They were concerned initially with the discussion of one or more of the topics raised in each week's Lecture Course. The groups consisted of a chairman and two other members of staff drawn from each of the three different "faculties" plus 8 or 9 students of equally mixed backgrounds and likely Honours' subject choices. It was hoped that oral contributions to such academic discussions would help to enlarge the visions of both the staff and students - in accordance with Lindsay's interdisciplinary overview. In practice, the resulting experiences varied between wildly stimulating success and abysmal, almost
embarrassing, failure, largely dependent upon the social and academic chemistry of the participants, particularly the attitudes and contributions of the staff towards such an unusual, challenging agenda (see Dr Exley’s account).

What was it that led to geology being a favoured choice? In 1950 very few, mostly boys’, schools taught the subject and those that did were often relying upon physical geography teachers rather than experienced geologists. Hence the geological insights bearing upon the nature, origin and evolution of planet Earth, Life and Man offered in the FY year had all the allure of an interesting intellectual adventure into the unknown. Apart from the Dr Cope’s admirable, measured but enthusiastic delivery (based on considerable experience of teaching WEA classes), the subject matter and ways of thinking introduced must have fired the enthusiasm of his audience. The lectures touched upon vulcanism, mountain building, mineralisation, continental drift à la Wegener) or an expanding or contracting earth, fossils in relation to the origin of life and its evolution (the Lamarkian and Darwinian views); the Ice Ages. In the term-long “taster” course, Trueman’s “Introduction to Geology” (1948) and Fearnsides & Bulman’s (1949) “Geology in the Service of Man” were used. In the year-long foundation courses, and true to Lindsay’s vision, the aim was to inculcate a feeling for the methods of science which would be of lasting educational value in terms of cultural awareness (Cope 1970, p. 10). For some students this was the first step in making possible a switch from the humanities or social sciences to the natural sciences as Lindsay had envisaged (ibid.). Alan Lees was perhaps the first student of later eminence to follow this route. In the event a fairly traditional approach to the subject was attempted both in this and in subsequent courses: physical geology (see Holmes’s book of 1944); minerals, rocks, fossils (many sources), the stratigraphy and “historical” evolution of the British Isles (Stamp 1933; Kirkaldy & Wells 1950) and, more excitingly, their palaeoenvironments and palaeogeography (see Wills 1950, 1951); geological maps and problem solving (Platt; Platt & Challinor; Bennison, in many editions; and “real” 1:63360 Geological Survey maps).

The consensus at the end of the first Foundation Year, and indeed of the 4-year Honours course as a whole, was that it had been a unique experience but that the students had been overburdened with formal teaching and course requirements. This applied especially if they were to take on the additional burdens of field courses and the Undergraduate Diploma in Education, whose courses were interwoven through all four years. Hence the rules which governed the choice and number of subjects from 1951-2 onwards was changed almost yearly in ways which are difficult to summarise briefly. Whilst the Foundation Year was running its course, the shape of the Honours courses was consolidated and additional appointments to the academic, administrative, technical and secretarial staff were being made.

### Table 1

<table>
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<th>Term 3</th>
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<th>Summer Vacation</th>
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<td>Man and his Environment 111</td>
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The weighty curriculum and timetable of an Honours geology student of 1950-54 is set down in Table 1.
Academic Staff. The following members of staff were recruited between 1950 and 1954 (see the Department Photographs 1-5). Those who are known to have died are marked with an asterisk thus *.

By 1951: Dr F. W. Cope * (Manchester University; Introduction to Geology; palaeontology; stratigraphy; economic geology) Head of Department 1950-1976; Dr Frank Moseley (Sheffield University); mineralogy; crystallography; igneous and sedimentary petrology; microscope work; structural geology, later geophysics) Lecturer 1951-54; Robert Barrass* (Cambridge; introductory geology; palaeontology) Assistant Lecturer 1951-3.
Departmental Photograph 2 (1955).

Departmental Photograph 3 (1956).
By the second honours year 1952, they had been joined by: Dr Peter Sheford* (Southampton; Mesozoic and Tertiary stratigraphy) Lecturer 1952-7; Dr Alec Trendall** (Imperial College then Liverpool; petrology; PreCambrian stratigraphy) Assistant Lecturer 1952-3; Chris N. Barron* (Cambridge) Demonstrator 1952-3; Dr Audrey Naylor* (London; a palynologist) Demonstrator 1953-6.

In 1953 the following arrived: Terence G. Miller (a Research Fellow of Jesus College, Cambridge, palaeontology and stratigraphy) Senior Lecturer 1953-65; Dr Maurice Stone (Liverpool; igneous and metamorphic petrology) Lecturer 1953-9; Miss Patricia J. Yates* (London University), Demonstrator 1953-4. In 1954 there were further additions: Dr Thomas Burnaby* (Cambridge; invertebrate and vertebrate palaeontology) Senior Lecturer 1954-67; Dr John Lambert* (Liverpool University; structural geology, igneous and metamorphic petrology) Lecturer 1954-62; Dr Russell Coope (Manchester University; palaeontology) Demonstrator and occasional Lecturer 1954-7.

In later parts of the years with which this account is concerned the following were appointed: Dr C.S. Exley (Oxford; igneous petrology) Senior Lecturer 1957-1986; John E. Thomas (Keele; Figure 13) Demonstrator 1959; Assistant Lecturer 1959-62; Michael G. Bawden (Cambridge) Demonstrator 1957-60; W.G.C.(Wal.) Austin (Keele) Demonstrator 1957-60.

Departmental Photograph 4 (1957).
Technical staff. Mr Denis Leverett was recruited in 1951 as a chief technician to make thin sections, service petrological microscopes and curate the growing rock, mineral, fossil, photographic and map collections. He served until 1974. He was supported by: M. Warwick until 1954; G. Hassall from 1955 onwards and I.N. Goddard c. 1956. Ms Barbara Pattison was in post from 1955; Mr Gerald Milton in 1958 (see the Department Photographs 1-5).

Secretarial staff. The first secretary was Ms M. Simmil who was replaced by Ms S.M. Bates from 1956. She was succeeded by Ms A.E. Butters in 1957 (see the Department Photographs 1-5).

Relationships between the Geology and Geography Departments.
Despite the near-requirement that all intending Geography students should study Geology to at least Subsidiary level, a certain amount of friction was apparent between the two departments. Professor Cope, aged 42, was at first only a Reader, whilst Professor Stanley Beaver, aged 46, and in possession of a Geology Degree as well as a Geography degree, was the arguably the most eminent of the early staff. He had recently contributed a large section on the physical background of the North Staffordshire conurbation to a Ministry of the day (The Abercrombie Report 1949). He was a member of the government's Waters Committee looking into the nature and distribution of sources of Aggregates; he was no doubt compiling evidence which would later appear in his popular book on the The Geology of Sand and Gravel (1968). Dr Cope was even more of a local expert for he had worked for much of his professional life in and around the Potteries Coalfield and was about to publish his definitive account of the Coalfield in Trueman's edited work of 1954 amongst many other academic works. Dr Cope showed a degree of disdain for Geography as a subject when advising students of their Honours' choices; he preferred them to select further science subjects. A clash of personalities was also at the root of the problem (see Ted Yates' contribution) but these matters did not greatly affect the work of the rest of the lecturing staff.
Figure 5. The Proposed Development Plan for the University College of North Staffordshire dated 1957 - the end of the period covered by this booklet. Notice the limited size of the then-existing Stage 1 of the Geology Department (numbered 22) and its anticipated extension of Stage 2 (shaded). The former position of the department 1951-54, in a concrete U-block in the former Italian Garden on the terrace of Keele Hall, is shown in black to the south of the Hall (numbered 15). Notice the absence of a ring road behind the Geology Department. (Figure courtesy of Keele Information Services and John Kolbert).

Figure 6. Early days in the building of the Geological laboratories in 1952-1953 when construction materials were rationed. Note the use of pre-cast Orlit blocks. The back, i.e. the southern side, of the building was built first and the northern, more presentable front (of better materials and appearance), was added later. (Photograph courtesy of Alan Lees).
Buildings. In 1951 the department and its laboratory were housed in half of an ex-army concrete U-block sited where the Italian Garden now lies - on the west side of Keele Hall (Figure 5). It was soon to become the University Architect’s Department. A further laboratory was temporarily constructed in what is now the Vice-Chancellor’s office overlooking the Lawns and the Top Lake. The Queen was the first person to sit at a bench and peruse a home-made thin section through a petrological microscope on April 17th 1951 - the formal Opening Day of the college (Cope 1970, p. 1). Two years later, the second arm of the concrete U-Block huts was converted into a further laboratory and lecture room and the first research students were found a home there. Meanwhile plans had been devised, completed and approved for the first stage for permanent laboratories and departmental facilities on the present site. Stage I was a one-storey building built of Orlit units (iron stanchions 8 feet apart with walls made of concrete blocks fashioned from crushed, cemented blast-furnace slag; cheap and nasty (Beaver in Harrison 1986, p. 157; see Figure 6). These housed two laboratories, a lecture theatre for 50, a workshop, store-room, library, museum and office accommodation; cost £22,600. The army huts continued to be used in addition until 1957 when Stage II was constructed (largely above Stage 1), of materials and in a style which was easier on the eye; cost £29,973 (Cope 1970, pp. 2-3; Figure 5). A Stage III was planned (Figure 5) and prepared but was only built in 1970. Stages I and II were constructed as a series of flexibly-linked units to counter the possibility of subsidence due to any future mining of the many underlying coal seams. At first the geological library was in Keele Hall and open 24 hours a day for browsing; a smaller collection was available in the department.

The Students. It was anticipated from the beginning that the yearly intake would be about 150-200 students, thus building up to only 600-800 students after 4 years, plus an unscripted number of postgraduates and other researchers. University record cards, to which the writer has kindly been granted access through the courtesy of Mrs Kathleen Blackburn, show that in the Foundation Year at least 21 students (6 females) studied geology for up to 6 hrs per week for the whole year as a Sessional Subject in 1950-51, 19 (7 females) in 1951-2, 29 (3 females) in 1952-3 and 25 (14 females) in 1953-4. In addition, 19 students (9 females) participated in the one-term-long tutorial classes (up to 3hrs per week) in 1950-51, but only 3 (2 females) in 1951-2, 5 (4 females) in 1952-3 and 14 (5 females) in 1953-4 (after the rules governing the number of subjects to be studied had been changed in 1951). A good many of these students, many more females than might be anticipated, went on to take geology as a Subsidiary Subject in the Honours course, thus completing two years’ very varied acquaintance with geological subject matter and ways of scientific thinking. Many geographers were in this group (see Figure 9).

24 students (out of the initial intake who survived the Foundation Year: c. 150 souls) are said to have opted for Geology as one of their two Principal Honours degree subjects (Cope 1970, p.2). However, the departmental photograph of the graduating class of 1954 shows that only 17 students appear to have stayed the course. This may not be a true figure because at least two students are known (from the details set down in the Calendar of Graduates 1965-6) to have missed the photocall. The numbers of starters in subsequent years are not known, but 11 graduates were photographed in 1955, 13 in both 1956 and 1957, and a very healthy 17 in 1958 (more about these figures later). Whatever the precise totals, the Geology Department was clearly in business in a serious way and was contributing significantly to an overall university education of a broad, stimulating and unique kind. Principal subject combinations with Honours Geology over the years 1954-58 varied considerably (see later).

The requirement to study three, later only two, Subsidiary subjects had sealed the popularity and viability of the Geology Department. Faced with the need to choose a science subject, geology was very well regarded by both males and females: see later for the exact numbers. These numbers were bolstered by the not-too-unspoken edict, stemming from Professor Stanley H. Beaver and Ted E. Yates (his geomorphologist), both of whom possessed Geography and Geology degrees conferred by London University, that all intending Principal geographers should seriously consider studying geology as an essential choice. Such popularity of geology as a Subsidiary subject, growing to as many as 90 students in the 1960s, put a considerable strain on the staff, the facilities and resources. Hence a large Elementary Laboratory - now known as the Cope Laboratory - had to be included in the building of Stage 111 by 1970 (Figure 5).
Figure 7. Two photographs of a field party led by Mr T.G. Miller to Arran in 1953-4 or 1954-5. Dr John Lambert (member of staff 1954-7) is standing on the back left with Terry Miller in front of him. (Photograph courtesy of Alan Lees).
The Geology curriculum as a contribution to the three years of the Honours degree 1951-4. The outline of the curriculum in Geology as a Principal Honours subject, and the lecturers who taught the courses, was as follows in 1951-54.

First Honours year 1951-2: General physical geology (FWC); mineralogy, crystallography, igneous and sedimentary petrology (FM); palaeontology: corals, brachiopods, lamellibranchs (FWC) and graptolites, trilobites? (RB); stratigraphy (starting at the Carboniferous) (FWC, FM); microscope work (FM); geological maps and interpretation (all staff). Easter vacation field class: North Wales (led by FWC, FM) based in University College, Bangor. Field skills and mapping on campus (FWC).

Second Honours year 1952-3: igneous petrology (FM); sedimentary petrology (FM); palaeontology (RB for trilobites; RB, FWC, TGM?); structural geology (FM); stratigraphy: the Pre-Cambrian? (AT); the early Palaeozoic (TGM); geological maps and their interpretation (all staff); microscope work (FM; AT; CNB).

Easter vacation field class: The Bristol area (led by FWC, FM, CNB) based at Wills Hall, University of Bristol. A local trip to the Wrekin (AT). Mapping training on the Kelee estate and Congleton Edge (FWC).

Third Honours' Year 1953-4: structural geology (FM, MS); metamorphic petrology (MS); geophysics (FM); palaeontology (gastropods FWC, RC for corals and crinoids); palaeontology, foraminifera, radiolaria, vertebrates (TB); stratigraphy: the Mesozoic and Tertiary (TGM, PHS); economic geology (FWC, FM). Easter vacation field class: The Isle of Wight (led by FWC, PHS based at Shanklin). In subsequent years this Easter vacation field class was taken in the Isle of Arran (led by TGM, FM; Figure 7) and based on the Corrie Hotel. Presentation of map and thesis; making of thin sections and a report on their nature and interpretation. In subsequent years a mapping class was frequently conducted in North Wales over two periods of 3 weeks over two successive Easter vacations.

This different and slightly abbreviated geology curriculum, the number of staff and the sheer size of the new laboratories of the department (which were ready for use in 1953-4), compared favourably with some of those university colleges still working to a curriculum set down and examined by London University. The initial size of the department was a reflection of the considerable number of students who were opting to study the discipline as one of their two Principal subjects. An impressive 19 students (6 females), out of the c. 140 surviving pioneers, graduated in 1954. After the rules requiring the study of fewer tutorial and sessional subjects in the Foundation Year had restricted students' range of experience of novel disciplines, as cited earlier, there were only 11 geology graduates (2 females) in 1955, but this figure rose to 13 in both 1956 and 1957 (2 and 5 females respectively). As the university intake increased to nearer 200, this figure grew to 17 (6 females) in 1958. (Alas there are no figures available for the numbers who started the course but fell by the wayside in 1955-8). The average number of graduates with Principal Geology is therefore 14.6 per year over the first five years. The number of females who, given free choice after the "taster" sessions of the Foundation Year, were opting for geology was particularly impressive in those post-war years (6 graduating in 1954; 2 in 1955; 2 in 1956; and 6 each in 1957 and 1958) (Figures 3 & 8).

Compared with the curricula of traditional universities offering Honours courses in geology as a single Principal subject, the Keele double-subject course necessarily had to make do with fewer formal hours of teaching time. However, it was believed by Lindsay, in particular, that the breadth of study of a second Principal subject to the same honours standard would more than compensate when it came to evaluating its educational value and marketing the degree awarded. In the field of research in the geosciences, in particular, even the choice of a science subject as a second Principal subject allowed access to a wider range of knowledge and understanding, different ways of posing and solving problems, and further techniques of observation and experimentation. These remarks applied especially to those who went on to do research in either the universities or in industry. The additional requirement to study three Subsidiary subjects (soon reduced to two) from the humanities (e.g a language) and the social sciences (for the science students), provided greater insights and experiences and a notable degree of literacy and numeracy.

The number of students studying Geology in combination with each of the other Principal subjects is of interest with respect to the fulfillment of Lindsay's vision. Access to the graduates' record cards by the writer was coupled with the proviso that a few records may have been lost, or have inaccurate entries, compared with the consolidated list of results which were printed in the University Calendar in the 1960s. Further data are provided by the annotated official photographs which hang on the wall of the ground floor corridor of the present William Smith Building (Departmental Photographs 1-5). Here again, however, there is no guarantee that all staff and students were available to be pictured on graduation day (see Figure 12 which pictures Jimmy Preston who is missing from Department Photograph 1).
Combinations of Principal subjects over the first five years 1951-55 have not been calculated but they clearly vary considerably and are dominated by Geology with Geography, with Biology being the second most common choice followed by Physics and Chemistry. Geology with Economics and Philosophy were rare choices. It is not possible to summarise the extra width and expertise provided by the choice of Subsidiary subjects, but biology was clearly a common adjunct for the Geologist-Geographers and a study of a modern language (and its literature) was also helpful to many a career.

In a wider survey for the years 1954-1970 reported by Mountford (1972, pp.178-181), there were 195 graduates in Geology, representing 3.2% of the whole population. Pairings of Geology with other science subjects were as follows: Geology-Biology 51 graduates = 14.7%; Geology-Chemistry 24 = 6.9%; Geology-Physics 18 = 5.2% (in each case as a percentage of the whole Science cohort). Combinations of subjects which involved Geology with social science and humanities subjects were recorded as follows: Geology-Geography 88 graduates = 19.6%; Geology with other Social Science or Humanities subjects 49 = 11.00% (in each case as a percentage of the whole Social Science and Humanities cohort).

The contribution of the Subsidiary geology curriculum to the Keele degree. As outlined earlier, given the requirement for all students to study a year-long course drawn from the Sciences, the Subsidiary courses of the Geology Department proved to be a very popular and much admired choice (as apparent in Figure 9 for example). This applied across the spectrum of disciplines on offer and was not only the choice of the Honours geographers. Student numbers were large, at times embarrassingly so in the light of the accommodation available. Awareness of the nature, origin and evolution of mother Earth and the utilitarian value of its materials to civilisation in general and the Industrial Revolution in particular, would hopefully generate a fervent wish to conserve its natural systems and life forms. In 1951-3 there were 39 Subsidiary students (9 females); in 1952-4, 38 (11 females); in 1953-5, 45 (16), and in 1954-6, 25 (16). These students, together with those choosing the Sessional courses in the FY year, led to the planning and construction of the large Foundation-Year or Elementary laboratory by 1970.
Careers. Of the first five years' intake, a number of Honours Geology students went on to research and university teaching and launched academic careers in the Geosciences (e.g. A. Lees, B.R. Saunders, D.B. Stone, D.H. Tarling, J.E. Thomas; the first four becoming Professors: Figures 7 & 12). Some found employment in the Petroleum Industry (e.g. J.K. Todd and L. Horobin in BP; Philip Braithwaite in a host of North American companies) or in Planning Departments (e.g. Henry Woledge). Several went into geology/science teaching in schools (D.B. Thompson, R.A. Reynolds) and science education research (D.B.T.). Others taught Geography and a little Geology in schools (e.g. John Turner, Margaret Float and Mavis Fox). The ability to teach not one but two subjects at Advanced Level of the General Certificate of Education proved to be a huge bonus in terms of achieving rapid promotion. Other graduates of the Geology Department forsook the geosciences for research and managerial status in microelectronics (P.H. Herman). One who had studied geology only in the FY and Subsidiary courses has subsequently become very distinguished in geoscience affairs (E. Derbyshire) (Figure 9).

Incidentally, the inclusion, in 1951-4 and thereafter, of Methods of Teaching Geology as a science in the concurrent Undergraduate Diploma of Education administered by the Education Department led, in the mid-1960s, to the establishment at Keele of the Association of Teachers of Geology (since 1988 the Earth Science Teachers Association). This was followed by the planning and chairing by the writer of the first International Conference on Geoscience Education at Southampton in 1993. Since then Keele University has been recognised worldwide as a Centre of Excellence for Science Education and Earth-Science Education in particular. In 2006 this has partly resulted in Chris King, the Director of the Earth-science Education Unit in the Education Department (funded by UKOAA - the United Kingdom Offshore Operators Association to the tune of £750 000 over 5 years) having a Professorship conferred on him.
Figure 10. Lord Lindsay encouraged his Heads of Department to interact with the people of Newcastle and the Pottery towns “down the hill” - as he had done as an Oxford extramural tutor ever since the 1920s. Here, in 1957, Professor Cope is demonstrating the significance of a display of geological specimens to local teachers and members of the North Staffs Group of the Geologists’ Association of London (of which he was a founding member under the leadership of John Myers of Wolstanton Grammar School in 1948). This event is taking place in the new laboratories at UCNS, but similar displays were mounted in the Pottery towns e.g. at Moorlands High School, Burslem, where Terry Jones was the Head of Science including Geology.

The members present, listed from right to left, are as follows:

Front Row – Tom S. Purcell (Secretary NSGGA; Head of Geology and Geography, Longton High School; Foulerton Award winner of the Geologists’ Association 1975); Philip S. Keeling (NSGGA and the British Ceramic Research Association, Penkhull, Stoke-on-Trent; Professor F. Wolverson Cope (Professor and Head of Department of Geology, UCNS); John Myers (NSGGA and North Staffs Field Club; Head of Geology and Geography, Wolstanton Grammar School; part-time tutor in the Education Department, UCNS, Foulerton Award winner 1960) Bert Bentley (Mining Engineer, National Coal Board); Mrs. Enid Watkin Senior; J.C.”Jack” Parrack (Head of Geology and Geography, Leek High School); Eileen Purcell; an unidentified member and child; Miss Sylvester.

Back row – an unidentified member; Mr. J.T.Gleaves (NSGGA Treasurer); an unidentified member; Mr. Adams; Mr. P. Jones Senior; Mr. E.A.”Ted” Watkin (NSGGA and North Staffs Field Club); John T. Wattison (Manager of a Pottery Manufactory in Portugal); Terry S. Jones (Head of Science, inc. Geology as a separate subject, Moorland High School, Burslem); four unidentified students from UCNS. This photo is by courtesy of Ted Watkin and appeared in local daily newspaper The Evening Sentinel in October 1957.

Extracurricular work. Lord Lindsay came from a distinguished line of extramural tutors associated with Oxford University and, from the beginning of UCNS, he greatly encouraged all members of his hard-pressed staff to reach out to the public at large in the Potteries and beyond. Dr Cope already had a distinguished background with respect to teaching WEA classes and he had extended this work in 1948 by joining and taking a leading role in the North Staffordshire Group of the Geologists’ Association of London which had been founded by John Myers. Later he made sure that the NSGGA would benefit by the building of his department and many meetings were held in its commodious surroundings (Figure 10). Some of the 1954-58 graduates went on to become part-time extramural tutors at other universities (e.g. D.B. Thompson at Manchester University 1962-88).
Research. Despite the burdens of teaching and planning for the future, from the earliest days the academic staff pursued their research interests. Professor Cope pulled together his knowledge of the Carboniferous Limestones of the Peak District and the Coal Measure succession of the Potteries Coalfield (Cope in Trueman 1954). Moseley worked in the Lower Palaeozoic rocks of the Lake District but also cooperated with Ted Yates of the Geography Department to produce accounts of the Quaternary sediments of the area to the northwest of Keele, together with its geomorphology (Yates & Moseley 1958, 1967; Yates 1956). T.G. Miller produced a popular geological account of the Scenery of the British Isles (1953) replete with over 80 artistically chosen and drafted illustrations. Colin Exley and Maurice Stone, both separately and in concert, worked on the granites and metamorphic rocks of Devon and Cornwall. Russell Coope began to unravel the implications of the finding of fossil beetles in the Quaternary deposits at Chelford in Cheshire. John Thomas worked on the Tan-Y-Grisiau granite in Snowdonia. Tom Burnaby studied echinoid occurrences and applied statistical methods.

Figure 11. Former students and staff at Professor Wolverson Cope’s farewell party in 1976. From left to right, the members present are: John E. Thomas Student 1950-54 and member of staff 1957-1962, Deputy Director of the Sedimentological Research Institute, Reading University; Professor Gilbert Kelling OBE (successor to Professor Cope as Head of Department at Keele 1976-1988); Dr Colin S. Exley, former Senior Lecturer in Petrology, 1957-86; Dr Andrew Parker, Student 1960-64, Head of the Geology Department and Director of the Sedimentological Research Institute at Reading University; Mrs Averil Exley; Professor Peter Worsley, Student 1958-62 and holder of the first Keele DSc awarded to a former Geology graduate; in 1976 he was Professor of Sedimentology, Sedimentological Research Institute, Reading University; Professor F. Wolverson Cope 1950-76; Professor Graham Park, former member of staff 1960-98 and third Head of Department 1988-1993; David B. Thompson, Student in the Geology Department 1950-54, Senior Lecturer in Science Education, in the Education Department, University of Keele, 1971-98.
Preface. Sadly Professor Cope passed away in 2000, but his memories of the early days of the origins of the university college and his department have been preserved in a book for which he contributed an oral account (published in 1998). The compiler and editor of that work, Dr Angela Drakakis-Smith, describes him as a very lively and enthusiastic person even in his late 80s. The said account is informal and more in keeping with the intentions and style of the present booklet than Professor Cope's earlier history of the department which was written to accompany the opening of the stage III buildings (Cope 1970). The editors are pleased, therefore, to acknowledge the permissions of Dr Drakakis-Smith, formerly a resident of Keele village, and Dr Bruce Richardson of Stanley Street, Leek, Staffs (editor in chief), to copy the whole of the edited version of Dr Cope's oral contribution which relates in large part to the years 1949-1958. The title of the afore-mentioned book is "Off the Record. A People's History of Keele". It was published by Churnet Valley Books, 43 Bath Street, Leek, Staffs, ST13 6JQ. The relevant chapter in the book is unattributed to an author and is headed Chapter 14, "Digging Deeper", but it is easily recognised to be Professor Cope's personal contribution to the history of the village and Keele University (pp.116-118). At the request of Dr Drakakis-Smith, the original headings and words of her account, based on correspondence and interviews with Professor Cope, are copied in the paragraphs which follow. See also Figures 10 & 11 and Department Photographs 1-5.

"Beginnings
I first visited Keele Hall during the 1939-45 War, shortly after it was vacated by the Dutch Army. There in the basement I met a group of ladies who were making grommets* for the navy."

"I followed the discussion reported in the press concerning the establishment of a University College in North Staffordshire. It was a long time before its location at Keele was seriously considered. One day in 1949, I saw an advert for a geologist to set up a department in the new University College at Keele. It was a condition of appointment that all academic staff should live on the campus. This was just the opportunity I was looking for - a post in an area which I knew like the back of my hand together with the chance to introduce my subject to young people and the opportunity to continue my research. I was also in full agreement with the main part of this so-called Keele "experiment" - to give scientists the opportunity of studying arts and social science subjects, and arts people an introduction to the sciences. They could then better communicate across the frontiers and no longer perpetuate the over-specialisation leading to the two discrete worlds of C.P. Snow. The prospect of building up a department from scratch was both challenging and awesome."

"Getting started
We moved to Keele in September 1950. A houseful of furniture and personal effects had to be crammed into an army hut, sited roughly where the Geology car park now stands, on the edge of the wood. The hut had been well converted into a bungalow. It was all electric, light and airy, and comprised a hall, kitchen, dining room, bathroom, cloakroom and three bedrooms. There was a small garden area but no garage. I converted an unwanted army hut in the wood close by into a garage and made a road to it. This arrangement lasted until late 1951 when the building of the Church Plantation houses was completed. Apart from the main drive from the Hall to Keele village and to Newcastle, there were no main roads. In the winter of 1950/51 we lived in a sea of red mud and we all moved about in wellington boots (Figure 4**). We hosted many parties and it was commonplace to see a mass of such boots outside a lighted front door of the bungalow at night. There were no road lights so at night you moved around at your peril.

"In the autumn of 1950, with the first intake of students in residence, administrative and organisational work was hard and long. Senate Committees proliferated and informal Senate meetings were held in between. The science departments faced a difficult time finding accommodation for laboratory work. I took over an army hut outside Keele Hall for Geology (Figure 5**). For some months I coped single-handed doing lectures, fieldwork, lab. work and tutorials. I was eventually able to appoint a technician and, about half-way through the year, two assistant lecturers were appointed."

"The first undergraduates arrived in October 1950. They were a mixed bunch of around 150. The ratio was roughly 2:1 men to women. For entry, the required minimum was two reasonable A Level passes (sic) and all were interviewed before they were accepted. In those days they read two principal or Honours subjects to cover a wide spectrum of knowledge. All academic staff wore gowns. We didn't use Christian names. Students were addressed as Miss or Mister. The second intake of students served to consolidate the so-called Keele "experiment". Tutorials were improved and the Foundation Year lectures were modified. All this imposed a heavy burden on the
academic staff. I don't recall experiencing any real financial stress. One day I said that we needed 50 petrological microscopes - expensive items even in 1950. Approval for their purchase came without delay."

"In the early years the Professors were left with little time to pursue research. But in spite of the fact that many of them already had quite lengthy lists of publications to their names, most continued to carry out original work. The more junior staff were busily occupied in designing and revising their courses but there was always emphasis and an encouragement to publish the results of their research. I think that largely through its residential nature that UCNS was a friendly and invigorating place. I always found it so."

"At the end of their first year, some students neatly painted the words "Freshers' Gate" on the sandstone gatepost between the footway and the carriageway to the entrance of Keele Hall courtyard. At a meeting of the Building and Development Committee the architect asked what action should be taken to remove the "graffiti". I urged that any physical or chemical treatment would damage the stonework and that, as the printing had been done so neatly, it should be allowed to stay. This was agreed and it remains to this day."

"At the bottom of the Ironmarket in Newcastle there is a statue of Queen Victoria in a seated position. A hundred yards or so away lie the public lavatories. One night in 1955 some wags from Keele carefully painted white footprints on the pavement from the statue to the lavatories and back."

"The Lindsay Era

Lord Lindsay took a keen interest in all that was going on. He was a genial grandfatherly figure, usually seen around the campus with his wife who always insisted on being called "Mrs Lindsay". Lindsay's knowledge of science was abysmal and he boasted that he could not read a plan or a map. Despite this, he had no time for fools, neither did he stand on ceremony. He told the consultant architect that we needed a High Table in the refectory. The day arrived for it to be unveiled in Lindsay's presence. The table legs were about six feet high. Lindsay took one look at it and with a grimace and smile said, "Pooh! Pooh!". When Queen Elizabeth formally opened the University College in April 1951, she got a little behind with a tight schedule. Suddenly Lindsay walked into the laboratory and called out, "Your Majesty, tree and tea!". The Queen duly planted a tree on the slope below the Clock House. The poor thing (the tree) died the following winter and had to be replaced."

"Lindsay inaugurated formal "Dinners" which were attended by students and staff, and were a success. He was genuinely interested in the progress and welfare of the undergraduates. He introduced the Oxford custom of giving a Handshake to each student at the end of term. But, with a fresh intake of around 200 or so students in 1951, such niceties soon became a physical impossibility."

"He took a personal interest in the planning of the Foundation Year courses. All staff cooperated and subscribed to this Year. The Keele "experiment" was successful, especially when measured by the general acceptance and success of the first crop of graduates of 1954, who were in competition with the products of traditional universities. However, the "experiment" could not be expected to continue. After 1954 there were some minor changes in the conduct of tutorials, the FY lecture course, and there was a reduction in the number of subsidiary subjects read by students, from three to two."

"Revolting Students ***

The undergraduates began to lose their gowns and turned up to tutorials without them. Lindsay had died and so had the "Dinners". Student activists became more militant over such things as increased residential rents and confidential files. In the late 1960s and early 1970s a vociferous fraction of students joined a nation-wide fight against any form of discipline. At one stage we had to guard our department through the night. Some events were criminal and quite disgraceful. In my view, university administrators were lamentably weak in the face of all this. One Wednesday afternoon, when all members of the Senate, gowned, went to the Walter Moberley Hall for a Senate meeting, it was pouring with rain and the door was locked against us. A student holding the key said that unless we voted in a certain way on some item on the Agenda. Had I been the Vice Chancellor I would have sent the student down immediately - but doubtless there would have been some ugly repercussions. Not a single university in Britain had the courage to stand up to this nonsense."

"Over the years things tended to become sloppy. Some members of staff ceased to wear gowns or even ties when they gave FY lectures. Christian names were bandied about everywhere and the woman Vice President of the Students' Union circulated all Heads of Department saying that in future you will address all women students as Ms. My copy immediately found repose in my waste-paper basket."
"The student unrest coincided with the period when graduates had no difficulty in funding well-paid posts. Within ten years of graduating one of my students was Head of a large Australian mining company and had his own 'plane. He had just scraped a Third Class in his finals. As jobs for new graduates became more difficult to obtain, students worked noticeably harder and staff-student relations improved. With the lowering of the age of majority from 21 to 18, the University ceased to be "in loco parentis". Halls of residence became autonomous and any discipline was that laid down by the student residents. Cohabitation ceased to be extraordinary".

"Recreation
There must have been 20 to 30 school-age children of academic staff on campus. They were taken to school in the College bus. Not everyone had a car then. The children had a wonderful time playing in the woods. We rarely saw them between mealtimes. These children, now grown up, say they were all raised in ideal surroundings".

"Academic staff had little free time. Some did get in a game of golf or tennis. When the professorial houses were finished on Church Plantation in 1951, we nearly all took to making gardens of what had been a birch wood. I constructed a wide footpath - with a roundabout, for toy cars and cycles which ran the whole length of the garden - from large paving slabs (around 50) that had been left in the woods by the army".

When students suggested organising a game of football on Sunday afternoon, Tom Ball, a local who was the first Finance Officer, said there would be strong local opposition to any such an event".

"Inside-out
From the beginning, the University attracted immense local interest from business people, especially from the heads of firms such as Wedgwood, Copeland etc. We quickly got on good terms with the general public of Newcastle and Stoke-on-Trent. There was initial criticism that there were no courses being run which were specifically designed to help local industry. That was more clearly the aim of the Stoke-on-Trent Technical College" (later to become Staffordshire Polytechnic and subsequently Staffordshire University - editors).

Editors' footnotes

* a grommet or grummet is a ring of twisted rope which serves as a fastening or rowlock.

** This figure was not included in the original chapter.

*** The events recorded in this section, "Revolting students", do not relate to the period 1949-58, which is the main concern of this booklet. They are included as a condition of being granted permissions to publish by both the author and the publisher in order to record Professor Cope's memories and reflections relating to 1949 to 1958.

Professor F. Worlerson Cope, former Head of Department 1950-1976.

Please address any historical or personal reflections regarding the tenor and accuracy of this account to either the editors or the Head of Earth Sciences and Geography, Keele University, Keele, Staffs ST5 5BG; Tel. 01782 583615.
TERENCE G. MILLER: LECTURER; SENIOR LECTURER 1953-65

See Department Photographs 1-5 and Figures 7 & 14.

I was a foundation scholar at the Perse School before passing on to Jesus College, Cambridge, where my university education was interrupted by the War (Natural Sciences Part 1, class 1, Wiltshire Prize 1937-9; Pt. 2, cl. 1, Harkness Scholarship 1946-8). A research fellowship at Jesus, and a university demonstratorship in geology, occupied 1948-53. There being no vacancy in the Sedgwick Museum in 1953, I applied for and gained the lectureship at UCNS later in the year. Presumably there was a published call for applicants but I have no memory of such.

The war years were spent with the Royal Artillery and in the Glider Pilot Regiment (1942-6; Major) and subsequently in the Territorial Army Royal Engineers Geologists’ Group (1947-67; Lieutenant Colonel 1964).

I have little memory of my interview at UCNS apart from my arrival in the courtyard of Keele Hall. I recall this because amongst the latest batch of students at the Sedgwick was a very mature one, G.E.T. Eyston, who had once held the world land-speed record. He had read for an ordinary degree before the War and now wished, as a senior director of Castrol, to complete his degree course with a bit of Geology. For the journey from the Fens to the Potteries he had kindly loaned me the use of his rather smart, very shiny Riley coupe. I stepped out of this outfit more or less straight into a chap who turned out to be Stanley H. Beaver, Professor of Geography. I observed an expression of surprise on his face (probably accompanied by a trademark sniff or two) as I passed on into the building. Beaver was on the interviewing committee and may well have thought I must have some merit - possibly stemming from the mode of my arrival!

With respect to the Foundation Year, to my astonishment I never formed a picture of what Prof. Cope was putting across in his FY presentations, and how our work fitted into an overarching plan. I do not ever recall engaging in a discussion or even a conversation with any head of department on the merits or otherwise of the early UCNS pattern of studies in general. At lecturer level, however, discussion was very active and widespread. I remember being introduced by Peter Plesch (Chemistry) to the meaning of the terms heuristic and hermeneutic. I had friends at the time, like Donald Nichol (History and a fellow cricketer) and Patrick Day (Philosophy), who did talk very interestingly about what we were supposed to be achieving - this while we took longish walks through the woods and alongside the lakes. Later on, c.1960, we even designed an entirely new FY programme, but like all sensational stuff, to no end.

This state of affairs was a great disappointment to both me and to other members of staff - not just in the Geology Department - as we were pitchforked into taking weekly FY tutorials. Eventually the penny dropped: that the FY was a single invisible locomotive to which each professor and head of department attached himself. Necessarily they all peddled their wares, showed their faces, and in some cases even blew their departmental and personal trumpets - contrary to Lord Lindsay's overall vision and suspicion of departmentalism. If there was a single label, it seems to have been unspoken and something to do with a properly educated person not specialising from the outset, but having sight of a bit of science, a bit of politics/economics/sociology and being aware of possible contributions from the humanities. With all this in their noddles, for the next three years, the students were expected to choose two main and three subsidiary subjects and contrive a balance of understanding between the main acknowledged "fields" of academic study. All this, I suppose, stemmed from Sandy Lindsay's Scottish and Oxford experiences.

Personally, I have never been able to judge the influence of the FY but I do know that a high percentage of students did change their intended courses as a result of it and this was probably measurable (see earlier) and possibly a good thing.

At Cambridge my only lecturing in Geology had been in the Engineering Department to students preparing to solve practical problems, many of which would require some kind of geological evaluation. Related to this, I had mounted demonstrations of minerals, rocks and fossils based on the splendid specimens in the Sedgwick Museum. I had, of course, acted as an Aunt Sally for the many questions related to the main second-year Stratigraphy and Palaeontology lectures of the Tripos.

When I arrived at UCNS, I had to devise and start writing a lecture course on the Principles of Stratigraphy with special reference to the British Isles - from scratch. I may have delivered some of the early
palaeontology lectures (e.g. on trilobites DBT) before handing this work over to Dr Tom Burnaby.

As things settled down, I taught mainly second- and third-year field geology, stratigraphy and a little palaeontology. To accomplish these duties, we worked in exceedingly cramped conditions in a couple of concrete huts sited on the terrace of Keele Hall (Figure 5), and I myself hastily prepared lectures in a cell (rather than a room) c. 8ft square. Thankfully we moved in 1954 into the first parts of the present building. In both these places Professor Cope had managed to accumulate (and Dennis Leverett organise) a remarkably wide collection of geological materials of all kinds. Alas, much of our staff time was spent sorting and labelling it "on the hoof". Some pretty gross mistakes were undoubtedly made. To be two steps ahead of lectures and practicals was the name of the game. I remember once or twice stopping in mid flow to interject something along the lines "No, no, that can't be right!" and doing my best to repair the continuity more or less plausibly.

One of my obsessions - overdone no doubt - was keeping up with the literature and it was becoming clear even in the 1950s that something was brewing at the extremities of geophysical / structural research - the preliminary ripples of momentous things. I found myself having to hold up tutorials whilst my bat-brain continued to crunch and grumble over the latest papers on geomagnetic sea-bed patterns, off-set faults, oceanic trenches, ophiolite belts and the like - all of which constantly prompted the question "something odd here, surely?". In the end, I left geology never to return - alas, at exactly the wrong moment (1965)!

Field courses were always a good thing because they allowed everyone a breath of (usually) Scottish air to blow away the effects of Potteries smoke (Figure 7). I always took the view that the rocks would speak for themselves and that rubbing noses with them would sort out "the men from the boys" from the viewpoint of ability and keenness for geology. Apart from that, I was sure that a good time should be had by all, especially by the leaders. So it was to Arran, Girvan, Skye etc. we went time and again - in rain, snow, wind and all. Maybe a few basic facts and techniques would be learned, but I always hoped that the work would be charmingly unstructured.

Extracurricular activities at UCNS which are best remembered relate to my playing cricket with my friend Don Nichol for the staff and research students and, I am reliably told, being photographed with Stanley Beaver, Bruce Williams (Economics), John Blake (History) and others, before playing for the male staff against the women students at hockey.

As a serving Territorial Army officer during the Cold War, I had to carry out several weeks "training" every year. By good luck I got myself nominated, on two separate occasions, to represent the Army at NATO level on Terrain Analysis / Trafficability conferences and demonstrations in the Canadian Arctic. At that time it was expected that military operations might take place over permanently frozen ground. By contrast, on another trip, I found myself momentarily engaged (but not very closely) in a shooting war during a confrontation between British and Indonesian forces in North Borneo. I was then attached to a Gurkha battalion cut off in the jungle. On another occasion I was working with an Australian squadron of engineers in a road building exercise - very hot and sticky work.

Back at Keele, for the first time in my life I was introduced to the horrors of committee life - academic version. I served on both the Academic and the College Councils - very enlightening. In these matters, UCNS was a "Professoriarchy" on the Scottish model. No one doubted the sanctity of this arrangement, so Donald Nichol and I questioned it quite firmly, and eventually faculty boards and their sub-committees began to operate differently. Some resented our intrusion and a few may have remembered a letter I had written to the Times in 1952 before I came to UCNS, ridiculing the notion of universities having separate parliamentary representation - in the case of Oxford and Cambridge two MPs each. Some in the establishment no doubt feared that I might write yet again concerning the inner government of UCNS. Later on, under Harold Taylor, I learned how to conduct meetings most profitably.

As the threshold to a senior lectureship approached, being a family man with a wife and three daughters to support, I had to consider producing a clutch of papers. A peculiarly obscure collection of Upper Palaeozoic bryozoan came to the rescue and the editors of various journals appeared to be well satisfied - not to mention a promotions committee.

The matter of accommodation and the requirement to live on campus in a rented house or flat was a sore point. When I heard of this at interview, I said flatly that I would need a three-bedroomed house at least.
Professor Cope must have pulled a few strings, for which I am eternally grateful. We accepted the offer of 16 Church Plantation - a house on the second rank of Professorial Row. Alas, over the years this resulted in a sense of isolation since we were cut off from the younger families in the other two housing clusters e.g. Larchwood. This did not worry me but Inga and the children would have been happier amongst their age group. We certainly didn’t find it possible to mix socially. An exceedingly important consequence of this local housing policy was that, on leaving Keele in 1965, aged 47, I had no jumping-off platform financially in the form of a house to sell. We have never fully recovered from this situation.

I feel unable to evaluate UCNS’s contribution to the development of university education but, hard pressed, we did our best to establish a sound department. The undoubted success of the field days and weeks and the pleasing camaraderie in the practical laboratories, were powerful factors in this regard.

There is one further contribution relating to the Geology Department, which should not go unmentioned. In 1962?, a few years before we left Keele, my wife Inga Catriona Priestman Miller, established a very important facility of great value to the university as a whole - a pre-school play group for the children of staff (and, later, the students). This proved to be the first on-campus nursery school. It was founded in the conservatory of our house at 16 Church Plantation. In addition, in the garden, we built a swing, a horizontal bar, a sand pit etc. Jane Burnaby (wife of Tom, Geology) and Annis Flew (Philosophy) helped a good deal. Inga is the proud possessor of two ten-year celebratory mugs, which mark the anniversaries of the founding of the group.

My subsequent career can be charted briefly. In 1965 I was appointed Head of Department and Professor of Geography at Reading University on the expectation that I would devise and run a course on Military Geography based on my experiences of developing Terrain Analysis with the Army. This I did and I understand that the takers enjoyed it. Nevertheless the course expired with my departure. In those days anything military was politically incorrect.

In 1967 I was appointed Principal of the University College of Rhodesia during the second year of the Ian Smith rebellion. This was, no doubt, because no-one in the Higher Educational establishment in the UK would touch the job. In 1969 I resigned from the post, along with the President of the College and the Governor of the territory, when the regime proclaimed itself a republic with an explicitly anti-black constitution. During and after my time there, Rhodesian hate mail, which I received produced variations on the themes “Commie go home” and “We don’t want pinko socialists here.” I returned to become a temporary Visiting Professor at Reading. A very kind rescue operation had been mounted - for we returned with no job and little money.

In 1971 I was appointed Director of the Polytechnic of North London, and for the next few years endured the outermost ripples of the American anti-war riots. During this episode, I was elevated from “Commie bastard” to “Fascist beast” a double label which I rather cherished. However, by perfectly frankly refusing to deal with the mob, I saw them off in the end. I left in 1981 with all departments working successfully on CNNA degree courses and a sprinkling of HNDs, retiring, I hope, “in good order and properly dressed” (as the overnight guard-room log-book entries used to record).

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Editors’ note. The backflap of T.G.’s book of 1953 on “Geology and Scenery in Britain” reveals that his soldiering included fighting in Norway, Holland and Germany, latterly with the 1st and 6th Airborne Divisions as a glider pilot. Besides hill-wandering and “rock-tapping”, he was said “to devote himself to studying the arts of politics and war; to cricket and old motor cars; and being mistaken for a don”. How Lindsay would have approved of this self-deprecation and width of vision - and the scribing of a book for the benefit of the public at large.
See Department Photograph 1.

I started life in Fagley (Bradford) where my young friends and I had an exciting life roaming wild through the local woods, fields and the deep Coal Measure sandstone quarries (which would be considered dangerous today). When I was 14 the family moved to Morecambe where the adventures on offer were cycling and fell walking around the Lake District and near Ingleton and its caves. Then came the war. I left school in 1940 after Higher School Certificate to join the Royal Air Force. For the next five years I was a pilot, mostly in the Middle East and in Africa (see Moseley 2006).

I then studied for a BSc and a PhD in geology at Sheffield University under Professor F.W. Shotton, a great motivator. This was followed by three years at UCNS, which are the subject of this account. After leaving in 1955, I worked in the geology department at Cambridge for three years (under Professor W.B.R. King) before spending the rest of my time, until 1990, at Birmingham University.

I arrived at UCNS for interview on my motorbike and stopped at the steps of Keele Hall to ask a kindly and helpful old man the way to the Principal’s Office, where the interview was to be conducted. I followed his directions, eventually found it, and was called in. To my surprise, I was confronted by the same kindly old man, who turned out to be Lord Lindsay, and Dr Wolverson Cope. How did Lindsay manage to get there before me? Well, it was a good start.

Apart from serving in the RAF, UCNS was my first real job and I remember it for the numerous interesting colleagues, students and experiences. It was early days for the University and only the second year of teaching. During this period I was still encouraged by Professor Shotton, who had been retained as the Geological Advisor to the War Office. He helped me to join the Army Emergency Reserve, Royal Engineers’ Geological Pool. Serving in the Pool involved dealing with geological problems of interest to the Army, such as water supply, road building and general engineering matters. This secondment was for about one month per year. It carried the rank of Major and it provided a valuable change - from undergraduate teaching to practical geological engineering and problem solving. It was surprising how little the army knew about Geology and the work certainly expanded my outlook and experience. Most of my time was spent on projects in the Middle East and Africa.

Back at UCNS, I was never involved in the marvellous Foundation Year, which was the province of the Head of Department, Dr Wolverson Cope, but I had plenty to do with the subsequent years of the four-year course. I will comment on things as they occur to me, but not necessarily in chronological order; my memory is not good enough for the latter.

Since I was essentially a field geologist, perhaps the most notable events relate to our field excursions. All such trips have their interesting moments and I must admit to getting them mixed up with those experienced subsequently at other universities. However, I vividly remember getting over-loaded with cider during a lunch stop in the Mendip Hills in 1953. I quite lost the use of my legs after lunch. I have forgotten, but I am told by one of the editors that rough scrumpy cider cost only 2d (two old pence) a pint at the time. I also recall a trip to Snowdonia in 1952, during which I spotted an interesting outcrop several hundred feet up the mountainside. It was nearing the end of a tiring day, and only a few of the party elected to climb up to it, so a few of us left our rucksacks behind and went to have a look. Upon return, I failed to notice the extra weight in my rucksack until we arrived back at the coach. This was a well-known student prank, I imagine, and I suspect to this day that the culprit was one John E. Thomas. In any event, I always regarded the field excursions as a highlight of the year and as good as a holiday.

I was also concerned with a project which will be described elsewhere in David Thompson’s contribution. This was our two-week long Scottish trip to collect rocks for our teaching collection. You can imagine that, at its beginning, the new department was very short of basic materials, especially igneous and metamorphic rocks and allied thin sections. I am told by George Rowbotham that some of these rocks and thin sections are still in use in the present department.

With regard to our teaching and examining, one event in particular sticks in my mind and it provided me with a valuable lesson for the future. It concerns the first Subsidiary Geology class at UCNS which numbered no less than 40. Bob Barrass and I were in charge of the setting and marking of the final examination. We were both ex-military and recently post-graduate, and were very inexperienced as university teachers. After reviewing the marking, we
finally determined to fail about 35 and pass only 5. Fortunately the external examiner was Professor Hawkes, a wise old head of department from Bedford College, London (or was it Reading?). He reviewed our efforts and then quietly suggested that "the percentages of the marks may be about right, but I think that we should do it the other way round - pass about 35 and fail 5". I can see now that it was exactly the right thing to do, and he was very nice about it.

One of the requirements for staff was that they should live on Campus. I was newly married and to begin with our accommodation was a room on the top floor of Keele Hall. Meals were taken in the large newly-built dining hall and staff, suitably gowned, were assigned to sit at High Table. Miss Rolfe, who was the domestic bursar in charge of each evening’s event, delegated me to serve out the meat to the rest of the table (to be laid on plates and then passed round). Of course, being surprised at the invitation (better described as a command), I did not count the number of people on high table, and I judged the size of my colleagues’ appetites according to my own. You can guess that the meat ran out halfway around the table and I was never asked to be head of table again! Recall also that food was still subject to post-war rationing at that time.

Another vivid memory relates to some kind of celebration party in the staff common room, where copious drinks were available. It is hardly in character, but I assure you that Wolvehson Cope set the ball rolling by creeping up behind a number of senior professors and cutting off their ties just below the knot!

Eventually more houses were built on campus, and Pat and I obtained a comfortable three-bedroomed house just in time for the arrival of our first daughter, Frances Anne. She was born at 40 Larchwood. She was the first person to be born on the campus and subsequently to graduate from Keele (in 1975). She is now a Counsellor at a Community College in the United States, and is responsible for the special needs of students. Although not a geologist, she is at least married to one. He is Paul Loubere who graduated in Geology and Biology from Keele at the same time as my daughter. He is now Professor of Oceanography at Northern Illinois University. They have produced three children: the eldest, Nicholas (21) having just completed a year abroad at Bristol University.

Our house on campus had a large field at the back in which the farmer kept his prized pedigree Hereford bull. One day it escaped and waddled up to the main drive towards the centre of the College. There was much consternation amongst students who were walking to lectures. The problem was solved when the farmer’s seven-year-old son appeared with a big stick. "Ger-’ome" he yelled, whilst intrepidly belting the huge beast on its backside. The bull duly and quietly went " ’ome" and so the problem was solved.

Our next door neighbours in Larchwood at this time were Jimmy and Doreen Hough who worked in the Biology Department. They had been fellow students at Sheffield University and they later followed us to Birmingham where Jimmy became Professor of Brewing. We were good friends and shared the opportunities offered by the former Keele estate. A small brook runs through the Keele Woods and had been dammed to form three lakes. During the summers of 1952-4 Jimmy and I had great times swimming in the bottom lake where it was possible to dive off the dam wall into deep water. Strangely to us, we never saw many others taking advantage of this valued amenity.

Other spare-time activities were quite varied. Of course, my involvement with the Army Reserve lasted one month each year. It was normally arranged to coincide with the summer vacation and was usually spent in places like Libya, East Africa and South Arabia.

With there only being one small shop on campus (run by the Students’ Union and J.E. Thomas at first and later by Mrs Dale), expeditions to Newcastle to buy household items took up much time. Lecturer’s salaries did not go very far and we had to make do with items of furniture from second- and third-hand stores. Dinty Moor in Newcastle was the most helpful, indeed a favourite source of old tables, chairs, chests of drawers etc. We also acquired a number of cement-covered builders’ planks from various construction sites on campus. We rubbed and smoothed them down and fashioned very serviceable book cases and shelving from them.

There was time for family holidays and there were visits to the rapidly developing campus from parents and relatives. For myself there was an often-spirited game of rugby for the Newcastle Club every weekend. In addition, I tried to keep my pole-vaulting going. I had previously reached a reasonable standard, winning the Northern Counties Championship and rising to Number Three in England. Alas, at UCNS there were no facilities, and I had to make my own uprights, chopped down from trees in the campus woodlands. I constructed my own run-up in a derelict part of the grounds, and dug a somewhat-painful landing pit out of soil (since there was no sand to hand).
Rock-climbing was better catered for. There were Millstone Grit escarpments not far away in the Pennines, with very good short climbs, which were greatly appreciated. I did, however, have one disastrous episode whilst climbing solo on the Roaches. I did know, of course, that one of the golden rules of climbing is that one never climbs solo, but despite this, I attempted a climb alone. I came off and fell about 30 feet, landing neatly on grass, but with my foot and ankle dislocated at 90 degrees to my leg. I managed to get down to my motorbike on the road and then to an adjacent farm by sliding on my bottom down the bracken- and heather-covered hillside. From the farm I was transported to the North Staffordshire Royal Infirmary. In those days my climbing kit was not exactly up-market, and consisted of really old clothes which were roughly patched - and by this time torn and muddy. Nevertheless, a doctor was able to put my leg back together whilst I was sedated. I was just coming round from the effects of the anaesthetic, when I overheard one nurse talking to another: "He's a University lecturer, you know. Would you believe it? He looks more like a butcher's assistant". (My apologies to all butchers' assistants!).

As far as research was concerned, Ted Yates (of the Geography Department) and I started an investigation into the Quaternary sediments and landscapes of the area around Keele. Two papers were subsequently published (Yates and Moseley 1958 and 1967). We acknowledged receiving considerable help from Peter Shelford (a colleague in the Geology Department) with the augering, which was so essential to collecting sediment samples containing spores and pollens. This would help to characterise the rock sequence and its palaeo-environments and eventually date the deposits. In 1958 this work brought us into conflict with Dr A.J Whiteman and Mr E.G. Poole of the Geological Survey who were mapping and interpreting adjacent areas of the Cheshire-Shropshire Basin. There were two different interpretations, ours and the Survey's. They were based in Manchester and considered themselves the Northern Team, and we were regarded as the effete Southerners (i.e. from anywhere south of Manchester!). I did point out my objection to being regarded as a Southerner, since my origins were not far from Ilkley Moor - and I still had a strong Yorkshire accent at that time.

The Survey men proposed a sequence of two boulder clays, the Upper and Lower, separated by a sand formation (the Middle Sands). They believed that this sequence extended from Carlisle to somewhere in the Midlands in the South. Our mapping and interpretation was more complex and detailed and did not support this view. It seems that subsequently, after the publication of the Survey's Chester Memoir in 1986, successors of Poole and Whiteman, e.g. Rees & Wilson 1998 in the Stoke-on-Trent Memoir, changed their corporate minds and were more receptive of our alternative, but I am not sure of this.

A side line of this work relates to some correspondence in the Guardian on the building of the M6 motorway past Keele. The highway engineers had been surprised that landslips had occurred, which had delayed the completion of the road (and cost as much as £10 millions extra). Indications of the problems to be expected had previously been described in the above papers and were easily recognised in the field where there was extensive hummocky ground in the landslip areas. Subsequently there was a very important piece of research by Early and Skempton (1972), which showed that the clays in the landslip areas were cut through by millimetre-wide shear planes along which all movement, past and recent, had taken place. These shear planes were noticeable in preserved borehole cores and had not been identified as such by the motorway engineers. Questions were asked in the House of Commons and debates were reported in the Guardian newspaper.

To end this contribution, I have to say that teaching and research whilst at UCNS gave me a good start to my career. I am now long ago retired, but life has been good to me. Pat and I have been married for more than 53 years. I have stopped pole vaulting and even stopped playing squash. We have three children who are very successful in life. I have published ten books and approaching 100 papers, with quite a few supporting the work of those who promote the wider importance of Earth-Science Teaching in schools.

(Editable note: Besides his academic qualifications: BSc., M.A., PhD., D.Sc., F.G.S, Dr Moseley briefly mentions the award of the ERD - Emergency Reserve Decoration - as a result of his military exploits during the Cold War).

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I was interviewed for the post of Assistant Lecturer at UCNS in April 1953. I had returned from fieldwork on the Highland Border for that occasion. The interview was conducted by Dr F.W. Cope and Professors Springall (Chemistry) and Vick (Physics), and was a very pleasant experience. I was pleased to be offered the job on the spot. Afterwards, I met Peter Shelford and Chris Barron, the latter of whom was soon to leave UCNS to go to the-then British Guiana - to the Geological Survey there, I think. It was Chris who walked me round the lakes on the Keele estate and took me to tea. Dr Cope was then a Reader, and was only appointed Professor after I had taken up the post.

I arrived to take up residence at Keele in mid-September 1953, and to prepare lecture courses in Structural Geology and Metamorphic Petrology. My first lecture (on the latter subject) was to the final-year group and was scheduled to take place at 9.00am in the concrete hut in the sunken garden outside Keele Hall. A little apprehensive, I arrived early so that I could meet and greet each person or group on arrival; I felt more relaxed as a result.

I had been doing post-graduate work (on the structural geology of Dalradian rocks in Donegal) under Robert Shackleton at Liverpool when I heard of the impending vacancy at UCNS. This post was to replace the one held by Alec Trendall, an Imperial College graduate, who had worked for his PhD under Shackleton, first at Imperial College and then at Liverpool when Shackleton moved there in 1949. Trendall had been involved in an accident in South Georgia, which had resulted in headlines and several pages in the Picture Post in 1949 or 1950. He had fallen some 200 feet down a crevasse on a glacier. He had taken up lecturing at UCNS whilst he recovered his physique before going back into the field in East Africa in 1953. I had known Alec at Liverpool - hence my early awareness and knowledge about my post.

The Foundation Year. Apart from giving a broad start, and an extra year, to university life, the Foundation Year provided a real "education" in the truest sense of the word. The whole concept of studying how, historically, knowledge has been acquired across so many disciplines, provided a unique insight into each subject and its interdisciplinary relationships. I enjoyed witnessing the whole idea of the Foundation Year and its influence on subsequent studies.

Honours Courses. Owing to the requirement to study two Principal subjects, the courses were effectively comparable with the Combined Honours of other universities e.g. Liverpool, but unlike many such courses, students could readily choose to cross and mix disciplines. For example, we had one person studying Philosophy and Geology and another, a journalist sent to UCNS by the ICI (Imperial Chemical Industries Ltd), in order to study Chemistry and English. The two Principal subjects, together with the two Subsidiary subjects, provided a much wider educational background than was common or possible in other English universities.

Easter fieldwork. I organised and led field courses (mainly for second- and third-year geology Principal students) with the following colleagues: John Thomas (in North Wales, 1955), John Lambert (around Austwick, 1956), Peter Shelford (centered on Appleby, 1957) and with Wal. Austin (in West Cornwall, 1958 and 1959). These were very successful excursions, and added immensely to the usually good staff-student relations. In general, such relationships were friendly, encouraging and sympathetic.

Final-year tutees. In 1953-54, my tutees were ex-Indian Army Major "Josh" Reynolds and Soccer captain John Thomas (both studying Geology and Biology at Principal level), and a lass and another chap whose names escape me. They attended weekly tutorials for which they wrote and presented orally their essays; they investigated and identified specimens and critically examined published papers. As with the Oxford system which Lord Lindsay brought to UCNS in its early days, I firmly believe that tutorial classes are vital to university education (see John Thomas' evaluation and appreciation of such work in his contribution).

I had little administrative responsibility, but I was responsible for starting, building up and running the college's geochemical research laboratory. In the later 1950s, I had three post-graduate researchers, namely John Thomas (geochemistry and petrology of a granite body in North Wales), Michael Bawden (geochemistry and analysis of boron in silicate rocks) and Wal. Austin (the nature and origin of the Carnmenellis granite, Cornwall). I published papers, with JET, on the analysis of calcium by flame photometry and with WGCA on big feldspars in Cornish granites. John Thomas gave an enormous amount of his time and energy in setting up and running the laboratory.
Initially we were housed in the Chemistry Department, with great help from Professor Springall - a fine example of inter-departmental co-operation which would have warmed the heart of Lord Lindsay (then, alas, in his grave).

Personal living accommodation was initially in one of the huts, then, in October 1953, I moved to the Post Office in Keele Village (owned by Mrs Jackson). In November, a place was found in Keele Hall on the top floor. This was followed by two weeks at Hender's house on the campus (Mr Henderson was Reader in Theology) whilst I was looking for further accommodation in January 1954. From then, until June 1954, accommodation was with Mrs Hopley at Church House, Keele Village. After that my wife, child and I lived on the campus until I left UCNS in early December 1959. We occupied site No. 53, later renumbered 54, in the Covert. Living on the campus was idyllic and greatly enhanced the progress of ongoing work (often for very long hours). Since I was then on a meagre assistant lecturer's salary, we were at that time unable to buy a house on or off the campus, and this resulted in our departure.

For me, working accommodation had begun in the Octagon and adjacent room, in Keele Hall, before moving to stage I of the then-new (present) geology laboratories. I shared the room with Peter Shelford, Tom Burnaby, Audrey Naylor and Patricia Yates. The last two were newly appointed demonstrators. When Stage I was built I shared a room with Frank Moseley for a term (in the Autumn of 1954) until he left to take a post at Cambridge University. I then shared with John Lambert until we were finally given our own rooms when Stage II was completed.

I left Keele regretfully to take up a lectureship at the University of Exeter at the beginning of December 1959. Here I designed a new geochemical (chemical analysis) laboratory and later a suite of research laboratories devoted to quite sophisticated chemical analysis. As at Keele, I spent most of my time doing research into chemical analysis of silicates, geochemistry, granite petrology and some structural geology. We had a good undergraduate tutorial system and, as at Keele, good relations with our undergraduate and postgraduate students.

I also stage-managed operas in the Great Hall and in the Northcott Theatre.

UCNS's contribution to university education in general has been indicated above. Additionally, however, it should be said that the breadth of study encouraged at Keele, and the type of person wishing to undertake that kind of study, generally resulted in the emergence of a rounded and mature person. I noted this particularly when I returned to Keele some two or three years later in the 1960s to give a lecture to the student Geological Society. The people I met were far more mature in their outlook than the undergraduates at Exeter. Of course, the additional year also made a great difference!

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I joined the University College of North Staffordshire (UCNS) in the spring of 1957, appropriately, no doubt, on 1st April. I had spent the previous five and a half years working on the raw materials of the various ceramic industries at the British Ceramic Research Association (BCRA) in Penkhull and, during two years' leave, on gaining my D.Phil. (also on ceramic raw materials) back in Oxford.

During those years I had been irritated by a surprising lack of knowledge of both the materials and the techniques involved in their pottery businesses by the managing directors of the factories, which I had visited with my immediate boss, Philip Keeling. Most of these men were descendants of the founders of these firms who, as they had prospered, had sent their offspring to be educated as "gentlemen". As a result of my irritation I was intrigued by the concept of a local university in which students of humanities subjects would have to learn some science and vice versa, especially as I had studied Classics up to the sixth form at school. Moreover I had enjoyed tutorial teaching whilst I had been a research student at Oxford. Therefore when a job came up at Keele I applied for it.

I was interviewed by Professors Springall (Chemistry), Vick (Physics) and Cope, and the Principal, Sir George Barnes, who acted as a make-weight to the scientists. I already knew Wolverson Cope, through membership of the North Staffs Group of the Geologists Association and, as a naval officer (though now a reservist), I had a little in common with Sir George. The interview was, therefore, relaxed and perhaps helped because "Spring" had played rugby against my old school, Leeds Grammar. I dare say, too, that my good relations with the Director of the BCRA (Dr A.T. Green), who was a member of the UCNS council, was no handicap.

I was never very clear where my appointment fitted into the staffing plans of the Geology Department, for although I replaced Peter Shelford as he left for Southampton, I was certainly not a stratigrapher-sedimentologist like him and there were already two hard-rock geologists in post in Dr Maurice Stone and Dr John Lambert.

I remember that at the interview Arthur Vick was very particular about explaining that residence on campus was a requirement. This was something of an irony as there were at that time no staff houses available. Thus I continued to live in Knypersley for another two years and commuted daily in my Austin 7 until I could no longer keep it roadworthy and replaced it (thanks to a generous loan from the College) with a new Morris Traveller. My starting salary, incidentally, was £800 a year.

The College was planned to expand from about 450 students and 100 staff to about 650 students and 130 staff in the next five years (a prospect that was terrifying to many!) and accommodation was short. There were only two permanent student residences - Sneyd and Harrowby Houses for women students - the remainder living in huts which occupied the whole of the slopes over the road from the Covert Houses and in front of the Geology building (see the plan: Figure 5). Unmarried staff lived in the attics of Keele Hall and there were frightening stories of antics in the Senior Common Room after dinner in the evenings, including one (told by John Lambert) of races on tea trollies, with the participants wearing tureen covers as crash helmets.

Living off the campus for those two years meant that I did not meet some of the early members of staff, including Ted Yates, but most of them were still present and there were many ex-servicemen among them, for example T.G. Miller, John Lambert and Maurice Stone (in Geology), Don Nicol (History), Ian Millar (Chemistry), and surprisingly to me, Kenneth Brooke (Professor of German), who had been involved with organising barrage balloons, he told me. John Hodgkinson (an ex-infantry officer and member of Eisenhower's staff at SHAEF (Supreme Headquarters Allied Expeditionary Force) was now Registrar and occasionally his military background showed, as, for example, when I had not seen a notice about some activity and was stupid enough to complain that I had not been told. His response was immediate: "You can bloody read, Exley, can't you?" To my mind, "John Hodge" is one of the great men of Keele; he kept the College and University going through some very difficult times, always with a minute staff, a minimum of fuss and yet great patience and good humour.

At the time I describe, he had an assistant called Mike Brittain who claimed to be responsible for directing visitors to Professor Arthur Teale's exemplary garden when they came to see Alan Gemmell's which, in reality, was far from perfect.

Among the senior academic staff, as in any similar institution, there were several "characters". Perhaps most
conspicuous was Sammy Finer, Professor of Political Institutions. Once, walking from my house in the Covert to the Department, I met him just as the Silverdale Colliery hooter was sounding and found myself entangled in a discussion of the origins of celestial music. I was also present once in the Senior Common Room when Sammy walked in announcing to all that "I'm in my Italianate mood today". I don't remember the reaction but it was probably academically intellectual - "Oh shut up, Sammy!" Professor John Lawlor (English) was a character of a quite different kind. In my early years he was spending much of his time away, largely in the Pacific Islands, I was told. When I finally met him, I was introduced by Professor Stanley Beaver (Geography) to "the visiting Professor of English".

When I first arrived I was rather perplexed by the presence of two professors of philosophy but I was told that there was really no conflict and that they were easily distinguishable because, while Arthur Teale was "moral", Tony Flew was "pure".

There were half a dozen women of great importance in the College's organisation. There were the two secretaries: Mrs Joan Morton who had had a distinguished army career in the Far East and who was the Principal's secretary and Miss Marion Bailey in the Registry who had been appointed in the very early days from the Town Clerk's Office in Stoke-on-Trent. Two other ladies were running the domestic arrangements: Mrs Florrie Morgan in charge of housekeeping and Miss Eileen Rolf, of catering. Incidentally Mrs Morgan had a daughter (Judy) whose unmarried status aroused some speculation and anticipation among younger members of staff, but I never heard anything factual about her. As a new, non-resident and rather junior lecturer, I had little to do with these ladies but found them amiable and helpful enough. Quite different were the other two of the six.

Stanley Stewart, the Librarian, spent nearly all his time sorting out the 150 tons of the Sarolea book collection (mainly works of literature) stored in the buildings of an old brickworks at Madeley Heath, so the day-to-day running of the College library, which was housed in the ground floor and basement rooms of Keele Hall, was in the hands of a formidable lady called Miss Friedman and one did not cross swords with her! The Sick Bay, in a hut outside the Geology Department, was under the control of Sister McLellan, a nursing sister of the old school who would stand no nonsense from anyone, especially her patients. At this time Dr Jim Scott, the Medical Officer of the College, a former M.O. of a tank unit in the war in North Africa, still ran his general practice in Porthill.

Another woman whom I remember vividly was Mary Wilson, the Women's Warden. She, too, had a rather daunting reputation. Harold (Hank) Hayley told me once that he and his wife had been out visiting one evening and, arriving home later than intended, he decided that he must escort the female babysitter back to her student accommodation in Harrowby House. However, the door was already locked and Miss Wilson came round the corner to find the Director of Physical Education on a windowsill trying to prise open a ground-floor window of the women's residence! The Men's Warden, Robert Rayne, was quite a different character; very quiet and modest, but greatly respected as I recall.

Because I joined the staff during the Easter Vacation, my first job was to take part in a field course led by T.G. Miller. This was in Raasay. Knowing nothing of that area, I went up early and had a few luxurious days on my own, living in the hotel, which had been the laird's house and being waited on in front of a big log fire in the panelled library. My chief memory apart from that, is of sitting with the students on top of Dun Caan, the highest point on the island and listening to a discussion about whether the ripples on the lochan below were the effect of the wind or evidence of a kelpie *. Among that group of students I particularly remember Carl Mason (who distinguished himself by mixing up the ferries and arriving on the wrong island), Kath Bolton, Mary Willis and one who has contributed to these memoirs, viz. Mary Becker (Figure 8). I also recall Don Tarling who kindly invited me to the end-of-finals party in his hut.

I did one other field course with T.G.M. This was in the following year, 1958, and was a geological mapping course at Austwick, to which I travelled in my Austin 7. This area was excellent for the purpose, consisting of a valley cut through relatively flat-lying and unconformable Carboniferous Limestone to expose the folded Silurian rocks beneath. We must have been one of the last parties to use the area because a short time later an embargo on student fieldwork was established by the farmers as a result, we heard, of misbehaviour by engineering students from a London College who persisted in climbing (and inevitably damaging) the dry stone walls - unforgivable conduct in hill-sheep country. Students on that trip included: John Stanley, who was later to become a member of staff at Keele; Tom Long, who had had a rough time fighting Mau Mau in Kenya during his National Service; Phil Edmondson and Julie Turner. I still have the surprisingly elegant geological map I myself made on this occasion, which was extremely cold, at least in the hotel at night.
My undergraduate teaching in the Department consisted chiefly of a series of lectures expounding the origins of various igneous rocks and the arguments about them developed by the main authorities, together with practicals illustrating first what these rocks consisted of and secondly how they are related. As always, the biggest problem was ensuring that students could identify minerals and encouraging them to practise this skill on hand specimens and under the microscope.

At this stage my only link with the Foundation Year was through Discussion Groups, which had been introduced in 1954. I soon found departures from the original concept, which was that the discussions should be tied into the FY lectures. Some chairmen were conscientious in this, as was my first, Bruce Williams (Professor of Economics). Others, however, insisted on developing their own programmes, which could include activities thought to be "improving" for the young, such as theatre and court visits. Yet others, like my second chairman, John Harvey (English), broke away completely from the original scheme. John would have no truck with any kind of scientist in his group, so, in effect, I had a year off. (As it happened, I had known John some years previously in the Navy and have wondered if this experience coloured his thinking!). These groups were invaluable in bringing together members of staff from different departments and likewise students with differing Principal and Subsidiary course combinations. The latter were fairly close anyway. In addition to ordinary social contacts like invitations to staff houses, baby-sittings and so on, the students put on Christmas dinners and concerts in the Union to which staff were invited.

Around the campus, the playing fields were being drained and levelled and the Principal (Sir George Barnes), with Tom Stacey and the groundsmen and student volunteers, were clearing and replanting parts of the woods. The "Barnes Dell" below the upper lakes was an attraction for years but, sadly, all too soon became neglected and was eventually overgrown.

My lasting impression of those early years is one of considerable comradeship. The surviving ancients of the academic staff nowadays greet one another as old campaigners and almost all agree that their students were better "people" than their modern counterparts: more "rounded", more adult, more adaptable and generally better educated. I still believe that Lindsay's concept was right and that our early graduates were both personally successful and thoroughly useful members of society.

Footnote:

* a kelpie is a water spirit, usually in the form of a horse and reputed to delight in the drowning of travellers.

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Editors’ note. Although he was not a member of staff of the Geology Department, Ted Yates lived next door to, and worked closely on joint research with, Dr Frank Moseley. In addition he taught many Geology-Geography joint Honours students, for example when conducting his annual Geomorphology options. His memories add an extra dimension to the story of the academic and social life at UCNS in its early years.

Appointment and Early Days. I arrived at the University College of North Staffordshire in the summer of 1951. This was ahead of other junior staff since I was to act as a surveyor for the college preparatory to the building on site of further staff accommodation. The senior staff and the first students had arrived the year previously, and the teaching of the first Foundation Year had commenced.

I lodged at first with Lord Lindsay’s daughter-in-law and then moved to Holly Lodge. I got to know the Lindsays quite well and found them to be gentlefolk, he of course immensely erudite and she passionate about things e.g. the miserable existence of battery hens. Working with the surveyors from the Newcastle-under-Lyme authorities, I was astounded to learn that, because Lord Lindsay had been ennobled during the Attlee government, UCNS was regarded with suspicion as a crypto-communist cell!

The other young appointees arrived in time for the commencement of the academic year, twelve months or more later than almost all the Heads of Department and senior staff. I hope that this scenario is never repeated, since the coming together of such an intermixture of senior and junior staff would need to be preceded by another long World War. What was truly extraordinary about the beginnings of UCNS was the fact that many, if not most, of the young male staff had endured six years of war service. They had seen most parts of the world and had enjoyed and suffered a multitude of experiences. The professors and readers, of a previous generation, with some outstanding exceptions, had no such wealth of experience. They were more used to the internecine warfare of senior common rooms, relating to disputes over funding and rank. More about this in a while.

The Registrar in these early days was Dr Jenkins and he and his wife often provided the accommodation overnight for potential young staff coming for interview. He was an eccentric and a devotee of Mah Jong. Part of one’s penance in staying overnight was playing a game of Mah Jong. He possessed one of the few cars on the campus - a Maigret-style Citroen. His wife was tiny and it was more than scary to see this car hurtling towards one - apparently without a driver. She parked with abandon and, on one famous occasion, blocked the exit to and from Newcastle-under-Lyme fire station. The college was lucky in that Wainwright, our head porter, was an ex-policeman of the Newcastle force, for he managed to avoid what would have been an embarrassing prosecution of the university, which was anxious to develop and maintain friendly relations with the local authorities.

Incidentally, Wainwright had great bearing and many a visitor and would-be member of staff, greeted by him at the top of the steps into Keele Hall, assumed that he was Lord Lindsay!

In these early days, we junior staff feared the influence of Manchester University, for reasons which will emerge, but Lord Lindsay came from Balliol, and many of the day-to-day events at UCNS showed the influence of that Oxford college. For instance we were required to eat on high table every day and to be suitably enrobed for the meal. Our graduation robes had long since perished and we were reluctant to pay much for new ones since our salaries were at the bottom end of the scale. The Lecturer in Chemistry, as the result of an industrious piece of research, discovered that the cheapest graduate gowns and hoods were those of the University of Tokyo. Many of us thus became graduates of that illustrious institution overnight!

In 1956 we junior staff were greatly amused by the furore stimulated when Princess Margaret was appointed Chancellor of the University College. A special bathroom was designed and constructed within Keele Hall for her use, in a place which is now part of the facilities of the Senior Common Room. There was the normal vying between parents of staff as to whose small offspring was to present a bouquet to the Princess on her first visit.

However, this event was preceded by the astounding activities related to the builders’ mound, which had been resting in the forecourt of Keele Hall. Over the years up to 1950 the hall had developed problems of dry rot - due perhaps to a lack of maintenance during and after the War. Its use by the various armies had entailed the construction of lavatory blocks. The mound was still a conspicuous feature: the debris of rebuilding and dry-rot repairs standing perhaps twenty feet high and much embellished by smashed lavatory basins and urinals. The sight of these, it was thought, would deeply wound a sensitive princess. Thus the better part of the parks department
of Stoke-on-Trent City Council, justly famed for the quality of its public places, descended on the place and the aforesaid mound was clad with turf and planted here and there with flowering shrubs. It looked very strange, but was deemed to be less offensive to the eyes of a princess. Immediately after her visit the turfs and bushes were removed, and the core of the mound revealed once more in all its awful nakedness.

The Foundation Year and the Honours Courses. The editors do not expect me to discuss in detail the content and influence of the geological parts of the Foundation Year and the 3 years of the Honours Geology course. Nonetheless, it is very relevant to outline some of the academic disputes within the evolving college. These inevitably involved some discussion about the relative merits of each discipline which comprised the UCNS' curriculum. Such discourse was usually a matter for senior staff rather than the new appointees. Mathematicians and physicists assumed pride of place, whilst the historians, confident in the venerability of their subject, remained indifferent. Professor Vick, Head of Physics, flabbergasted us all at dinner one evening by announcing that, in his view, physics subsumed all other disciplines. (This may well have offended the philosophers. The Head of Moral Philosophy was Professor Teale and the conjunction of the two names Vick and Teale often gave rise to the spoonerism Tick and Veal).

Of greater interest in this connection was the relationship between Geology and Geography departments. I had come from King's College, London University, where the Geography department had grown out of the Geology department and many staff and students had studied both subjects. Indeed, its first Professor of Geography was a geologist. Many of the writers of the early memoirs of the Geological Survey were both geographer and geologist. For example Topley's famous "Weald" was the product of such learning. In those far off days, including the 1950s, Geography still retained a large landscape element as a part of its Earth Systems' approach. Later in the 1960s they became more concerned with such arcane themes as the best location for a supermarket, but that was in the future.

The young staff in the Geology and the Geography Departments had therefore much in common and this professional relationship was further cemented at the personal level since they were all ex-servicemen. In addition Frank Moseley's wife, Pat, was a geographer and her husband and I soon began to co-operate in some local research (see later).

From 1950 until 1953, there was nobody of professorial rank in Geology. Wolverson Cope as Head of Geology was a Reader whereas Stanley Beaver, the Head of Geography, was a Professor. This unfortunate situation did not help to promote cordiality between the two heads of department. As a former Principal Scientific Officer and field geologist of the Geological Survey, Dr Cope, had been, until 1950, responsible for responding to official enquiries which related to sheet 123 Stoke-on-Trent, the local one-inch to one mile 1:63360 geological map. He did not entertain the highest opinion of the sister subject. This all changed when, somewhat later, he remarried and his bride proved to be a Geography lecturer at Crewe and Alsager Teacher Training College; a fine example of the advantages of scientific training in promoting the close reasoning likely to cause such a volte face.

The Classics Department also lacked a professor, the head of department being a Reader who was himself unusual amongst the senior staff in just commencing a family. In addition another lecturer in Classics was also exceptional in that he was a New Zealander. He and his wife certainly brought a fresh attitude to academe.

I had naively imagined that conversation in university senior common rooms would be centred on philosophical themes. In fact I found it was generally an erudite discussion of whose wife was pregnant.

Academic buildings. Another source of amusement to the young staff was the architectural diversity of the buildings being constructed for the various departments. There seemed to be little sense of overall planning. Each head of department had considerable voice in the design of his new departmental building and exercised his own architectural taste, or lack of it. The result was diversity, and not strikingly harmonious.

Pay and conditions; housing and accommodation; extracurricular life. The University of Manchester was one of the institutions acting as sponsor for UCNS. During the interwar years it had had an unhappy reputation for sacking young staff at the end of their three years' probation. By so doing the administrators kept the wage bill as low as possible. The young staff, newly appointed at UCNS, were not fresh from university but men in their late twenties, in many cases married and with children. Their worries were centred upon security of tenure and
brining up a young family on an inadequate salary. The latter was certainly low but offset a little by the payment of a child allowance. Since the younger staff were all in their reproductive years the number of small children was notable. The University Grants Committee went so far as to query the large amount of child allowance being paid to junior staff at UCNS but in the end it was shown to be correct.

The Keele campus, the former parkland and garden of the Sneyd family proved to be an excellent environment for children. They roamed the campus in a pack led by the children of Professor Gallie (Philosophy). Joining the pack was a privilege. There was the sad sight of a daughter of a language lecturer, a five-year-old child, notable in that she seemed to have a permanently runny nose and droopy knickers, who suffered greatly from being pinched by the whole gang as the price of admission.

The children also played on an estate farm that backed onto the new houses in Larchwood. The children of the farmer joined the gang and introduced the members to the farm animals. These included a large bull known rather charmingly as "Big Business". Parents were horrified when they learned that their precious offspring had often been sitting on the back of the bull. Fortunately the animal was extremely tractable with small children - whatever his malevolence with adults.

Living in such close proximity the families of the junior staff freely entertained each other. Thus it was that another theme, lacking in any philosophical academic base, found discussion on many a winter's evening. This concerned the extraordinary greyness of the "white" washing of the young wife who lived on the new Larchwood estate. These were the days before washing machines; scrubbing boards and dollies were the normal equipment of a housewife and, believe it or not, amongst even highly educated wives, there was a good deal of pride in the state of the family wash. This poor lady was very unsuccessful and her wash was the centre of much banter.

Harry Wardell, the highly inventive chief technician in Physics, constructed the first washing machine installed at UCNS. Incidentally his wife was, by more or less common consent, rated the most beautiful woman on campus. Since many of the young staff were cognoscenti in such matters, discussion of this rating was of considerable conversational value.

We were also much entertained by other seemingly trivial events. The new houses at Larchwood constructed for the junior staff had been built by direct labour and were architect-designed. This combination led to various teething problems when the houses were first occupied, of which four may be highlighted. First, our casement windows were without stays. It was explained to Frank Moseley and me that the new friction hinge of these windows dispensed with the need for a stay. This may well have been true in a closely built-up urban location, but the Keele Estate boasted a good view across the Welsh Mountains and when the wind blew, it blew. The windows swung open and shut alarmingly. Stays had to be fitted to all the widows as a matter of urgency. Secondly the language lecturer on the corner of the estate (father of the five-year-old mentioned above) flushed the newly installed toilet only to see a small fountains coming up from the plug hole of the bath, a most original plumbing design! In a third case, instead of the wooden toilet seats to which we were all accustomed, we were supplied with state-of-the-art plastic seats, in those days quite an innovation. They had been moulded under pressure and we were astounded to hear explosions coming from our bathrooms as the seats shattered (fortunately when unoccupied). Such weighty matters serve to illustrate that the running of UCNS in these early days, was not very efficient or democratic. The younger staff had only one representative on Senate. To our amusement and incredulity, we heard from him how Senate had, as an item on the agenda, discussed the question of whether the tenants should be charged for replacement toilet seats. This learned body had spent several minutes discussing the issue. In a fourth instance, Don Nichol, the Lecturer in History, lit his fire but soon had to leave the house because of the huge volumes of smoke that poured from the grate into the room. The builder was called back and his solution was to drop a cannon ball on a chain down the chimney. By this means he eventually dislodged a spade set in a bag of cement that some enterprising hod carrier had neatly disposed of!

The behaviour of the senior staff and their wives also provided many topics of conversation in the soirées of their juniors, for we met each other frequently. There were numerous eccentrics amongst them. The Registrar and his wife, and the head porter Wainwright, were not the only ones. Two further examples may suffice.

Professor A.R. Gemmell, Head of Biology, was famous as a participant in the BBC programme "Gardeners' Question Time". The questions posed on that programme were all known to the experts in advance and they were not answered spontaneously as was the impression. One of the chief tasks of the staff of the department was to prepare Professor Gemmell’s responses to the questions. His own garden was not worthy of the name, being
simply a weed-infested wilderness. He was, in fact, no gardener at all. His wife, looking out daily and despairingly at the wilderness, took photographs of the same and threatened to send them to the BBC unless Alan mended his ways and cleared the plot. (The editors recall that visitors to the "Gemmell's" garden were invariably taken round to Professor Arthur Teale's carefully cultivated plot - very appropriately that of a Moral Philosopher).

Another member of staff, who shall be nameless, was eccentric in another way and was notorious for treating the domestic staff badly. The latter formed a particular hatred for the said person since they were invariably addressed without a shred of courtesy. In due course, this academic was offered and accepted a chair in another university. On hearing this news, head porter Wainwright broke out the flags on the numerous flagpoles of the Hall. On return, the newly promoted member was oblivious of the true feelings of the domestics and merely assumed that the flags were there in their honour, whereas in fact they simply recorded a celebration of a happy release.

Co-operative Research. The geological and geomorphological origins of the landscapes of the countryside around Keele were strangely un-researched despite the fact that the Woore Moraine was the product of the last ice advance (the late Weichselian; now the Devensian) to affect England. Frank Moseley and I spent much of our free time investigating the glacial landforms, stratigraphy and sediments of this area, and we continued this collaboration when Frank moved to Cambridge and I went back to Kings (see our publications: Yates and Moseley 1958; 1967).

We returned to the area around Keele and the South Cheshire - North Shropshire Plain on many weekends. One episode stands out in my memory. We both retained our military greatcoats which were truly wonderful to wear in wet weather. On a very wet Sunday we were auguring in Baggy Moss, in the Market Drayton Gap , and had augured down down some twenty five feet through peat into a Chara marl, one of the richest ever found in England. Throughout our work we could only manage a couple of probes a day. On this occasion we were leaving the bog at twilight, very dirty from contact with the peat and very wet, and carrying the pipe-ware of the auger used to make a probe. We passed the farmhouse on the edge of the bog at a time when the lady was drawing her curtains to shut out a miserable evening. She stood transfixed with the curtains half drawn. We imagined that she thought two ancient trolls had crawled out of the bog! On another such occasion, when we were in a sand pit, our presence was reported to the police.

Subsequent career. In 1955 I left UCNS to return to my Alma Mater at King's College, London.

Conclusion. Yes! The early days of UCNS at Keele provided experiences to be treasured in retirement; the friendships formed amongst the younger staff still survive.

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MARGARET FLOAT (née BLAKE): HONOURS STUDENT (GEOLOGY & GEOGRAPHY) 1950-54

See Department Photograph 1.

I arrived at the University College of North Staffordshire hoping to study Geography and French (Language and Literature). Alas, this proved to be impossible because I was the only student requesting this combination. Thus by the beginning of the first Honours' Year, I had to find another subject. I had enjoyed, and been successful, in studying Geology as a sessional subject in the Foundation Year, despite my lack of a scientific background at school. At this juncture, Mary Wilson, the first Women's Warden, came to my aid and persuaded Dr Cope to take me on, despite the fact that he already had a great many names on his list - between 20 and 25.

During the FY, I made further acquaintance with French Language and Literature as a sessional subject and attended Economics and Psychology as tutorial tasters.

I found that some aspects of the Principal Geology course were enjoyable and enlightening, especially the field excursions, but I struggled more than a bit with geological mapping, map interpretation and especially crystallography and stereographic projections.

In Years 2 and 3, one of my Subsidiary subjects was again French Language and Literature, but I also renewed the study of Latin and Classics - besides taking up work for the Diploma in Education in lieu of a Subsidiary subject.

At the end of the course, after many ups and downs, I was confident of my Geography, but I was sure that my Geology would let me down in finals. In the outcome, I was very relieved to be awarded a good Honours' degree as well as the Diploma in Education.

During my teaching practice placements, whilst qualifying for the Education Diploma, I was able to teach some Advanced Level Geology to the sixth formers of St Dominic’s High School in Stoke-on-Trent.

My accommodation was in Hut 2 for the whole of my four years. In my spare time, I played netball and table tennis for the university. I served as secretary to the Student Geographical Society. I was a keen member of the Folk Dance Society and, as such a dancing group, took part in the open-air production of William Shakespeare’s “The Tempest”. Like so many fellow students, I babysat for a number of members of staff.

So far as extra-curricular work-places were concerned, I was pleased to be found a place in the Staffordshire County Council's County Planning Office in Stafford for two years on the run. I was working on their Land Use and Footpath Surveys.

In 1954 I left UCNS for a teaching post in Birmingham but soon moved on to be Head of a Geography Department at The Friary School in Lichfield. After my marriage to Richard Float, we lived in Birmingham where I managed to find another convenient post, which I only left when my daughter was born. Another move followed when my husband was appointed Assistant Bursar at the University of Leicester.

After a six-year break, I returned to teaching part-time at a local Grammar school after our elder daughter went to school. When this job lapsed due to reorganisation of schools, I went into teaching in a Further Education College for some years and also did supply teaching at the local primary school.

In 1981 an Independent Grammar School opened in Leicester and took in 90 pupils in the first year. I taught them all, and in a way was a "pioneer" for the second time. The school grew very quickly and is now doing well in the League Tables. I only taught Geology where it was part of the O- and A-level Geography syllabuses - i.e. very little in today's geography syllabuses. What a contrast to the 1950s when physical geography and Earth Systems ruled supreme! I also taught it at a simple level to 10 year olds who came into the preparatory class, where my rock and fossil collections found some good use. I stayed at this school until I retired in 1992.

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PHILIP H. HERMAN; HONOURS STUDENT (GEOLOGY & PHYSICS) 1950-1954.

See Department Photograph 1 and Figure 9.

Road map to UCNS. I was brought up in inner Manchester and was educated at the city’s Dover Street Primary School. By courtesy of the 11+ examination, I passed on to grammar school - the Central High School for Boys, a former Higher Grade Science School of great repute. In the sixth form, my HSC subjects were Pure Mathematics, Applied Mathematics and Physics - an early instance of specialisation. I guess that I applied to UCNS, amongst many other places, because my early-morning before-school table-tennis partner and opponent, David Thompson, had returned from North Staffordshire with a promise of a university place - conditional of course - in a venture which was to be novel and was likely to be interesting (see Figure 9). Offers to study Mechanical Engineering from Sheffield University and, across the road from school, from the University of Manchester Institute of Science & Technology, were rejected in favour of UCNS and its collegiate campus lifestyle.

The Foundation Year. It was during the FY lectures that my thoughts first strayed to a consideration of a career in Geophysics, and hence to taking up Physics and Geology as my Principal subjects.

Dr Cope was giving his introductory lectures with such conviction that he influenced many students to take up his subject as either a Principal or Subsidiary course. His deep practical knowledge and experience - 16 years with the Geological Survey and much of it locally - gave meaning and substance to his outline of the fundamental processes which had shaped the evolution of our planet over 500+ million years. I was impressed by his even-handedness in acknowledging that the fossil record did not necessarily support the true Darwinian perception of the evolution of life by minute steps of random mutation and variation in genes. With hindsight, I believe that the Darwinian model, however monumental at the time, leaks like a sieve. During this first year, I admired the width of Professor Vick’s contribution to the lecture course, and I came to know a little of his distinguished work in the last war.

In the FY year my choices of Sessional subjects were German (language and literature) and Geography, but I also undertook taster tutorials in Psychology and Geology. I kept up my interest in Mathematics for two terms and in Physics for one. In continuing with disciplines like Mathematics and Physics, I was only adding to what might be considered to be my over-specialisation.

The Honours Degree course. Having made my choices of Principal subjects, I had made only one change from those which I was initially inclined to select. My taking on Geology proved to be quite congenial and I remember with pleasure the warm and humorous relationships which rapidly developed between Dr Frank Moseley, Robert Barrass and the twenty or so pioneer students. Laboratory sessions and lectures in mineralogy and afternoons on geological map interpretation were often absorbing. The bases for the classification of the igneous rocks were of great interest and was something I came back to in retirement. By contrast, despite my studies of physics, I still could not get my head round those dancing isogyres and the use of the mica plate to determine uniaxial and biaxial signs of different crystals. Sitting under electric bar heaters on the wall didn’t help. Got a headache... time to sidle out to tea!

My Subsidiary subjects were Mathematics in year 2 and German (language and literature) taken in year 3. Out of interest, I continued to go to Mathematics lectures in years 3 and 4. This move was to serve me well in future years. In addition I took on the burdens of the Diploma in Education - in all a 34 hour timetable at one stage.

Extracurricular activities. During the three years of the Honours course, I began to detect that I was receiving additional support from unknown mentors. I suspect that Dr Cope and Professor Vick were conspiring to sing me out for some interesting summer placements for each of years 2, 3 and 4. Their network of contacts proved to be first-class. These placements mainly involved practical laboratory and fieldwork in geophysics.

In the summer of 1951 I was offered and undertook a sponsored four-day-long visit, all expenses paid, to the annual meeting of the British Association for the Advancement of Science at Liverpool. This gave me the opportunity to attend a wide selection of lectures, demonstrations, places of scientific interest and field locations of my choice. The visit greatly widened my youthful horizons.

In the Summer of 1952 I was offered and undertook six weeks of laboratory work at the Department of Geophysics, Madingley Park, in the University of Cambridge. I was involved in a project to measure variations in the Earth’s
magnetic field strength in rocks which had been abstracted from a 300m (1000ft) borehole core through Icelandic basalt lava flows. The time scales were in tens of millions of years. The sections of core were laid out in a shed next to the laboratory. Using a diamond cylinder cutter, I produced samples of about 5 cm diameter and 10 cm long. I had detailed information on the physical orientation and the depth in the borehole from which these samples came. I also knew the age of each lava flow. I set up a sensitive magnetometer in the lab. and proceeded to centre each cylinder in its correct orientation before measuring the three vector components x, y, z of the field strengths. From these I could calculate the angles of inclination and declination and the field strengths. There was no lap-top and computer-graphics package in those days, just a cylindrical hand-wound Babbage machine to calculate the square root of the sum of the squares of the three components of the field, and hence the angles and absolute magnitudes of the field strength.

In doing this, I worked for a Dutch scientist who was writing state-of-the-art papers in the journal Nature (1951) and the like (many published in 1954). Subsequently he worked on and wrote many more on the palaeomagnetism of the Earth’s magnetic field (and later some on Polar Wandering) with well-known researchers. The Dutchman was Jan Hospers and the acknowledged scientists were Professors Blackett and Runcorn who, unknown to me at the time, were making their discoveries in Manchester University’s Physics Department within a stone’s throw of my own home in Rusholme Road, inner Manchester. Their co-worker Irving was also in the labs at Cambridge at the time.

Before the summer of 1953, I wondered what my mentors could produce to eclipse or equal the opportunity experienced at Cambridge. There seemed to be no problem; I was offered and gladly accepted the chance to go to Holland and do fieldwork with Royal Dutch Shell based in Amsterdam. I have no idea how this assignment had been secured. My mentors’ network had been active once again.

I met my other five colleagues on a train from Kings Cross to Harwich; we were booked into a first-class compartment in which all the seats were reserved. We then travelled overnight by ferry and train to Amsterdam. Things boded well from the moment we arrived: first-class hotels, dining, travel etc. I had never before been to Europe. I had undertaken a crash course in Dutch for a month before departing, and my spoken German, learned both from my grandfather and from school, augmented many aspects of the vocabulary needed. At Shell’s headquarters in Amsterdam the company ran a University-type graduate training school. It was here that we six, from different English universities, met six comparable students from Dutch universities. We were divided into two mixed teams for seismic fieldwork. Before arriving for the first day-long lecture course, we had stayed in one of the best hotels in the city. It boasted an excellent swimming pool and gourmet dining. We twelve students ate and drank our way through whatever we desired. All we had to do was sign a chit on each occasion. So much for memories of war-time rationing!

What a first week we had. Every day, 9am to 5pm, we attended lectures, tutorials and worked on exercises in the laboratories, studying the theory and practical work of seismology in order to be ready for the five-week-long field experience in seismic reflection techniques appropriate to investigating soft sediments. After this week of intensive study we travelled north to Zwolle, close to the Zuider See, and our base became a country hotel. Two trucks containing portable labs and recording instruments, and a third truck to transport the working party, were available each day. The kind of work undertaken proved to be such great fun especially when we were returning each day to a good hotel.

With the aid of a shot-hole driller, we dug a central hole to hold the explosive charge. Then, in a surveyed line, we buried a dozen detectors on each side of the line of explosive charges. Each detector was buried about half a metre deep and 25 metres apart. They picked up reflected sound waves from the underlying strata after the shot had been fired. Back in the truck 24 sensitive galvanometers traced the arrival times of the reflected waves. These times were measured to one hundredths of a second. From this data, velocities of sound in different strata, and their depth, were calculated. To test that all electrical connections were operating and that each seismometer was sending a signal to each of the 24 galvanometers, the sequence of commands was "Stoomp op de Grund" (check that all galvanometer pens were oscillating), "Stock Still", "Feuer". Every member of the two teams had experience of all aspects of the field work. I will never forget sitting in the dark room of the lab. truck, amidst the smell of development fluid which was processing the roll of film for each of the seismic reflection lines.

Our weekends were free and this enabled us to go with our Dutch friends to cities and universities such as Delft, Den Haag, Rotterdam, Utrecht, Haarlem and Leiden.
A particular outcome of this field training was for me to select a specific topic as a final year thesis back at UCNS. The department accepted the idea that I could research and work on "An Introduction to Geophysical Exploration Technologies" instead of a standard field-based Geology topic. This suited me perfectly.

At Easter in 1954 we undertook a field trip to the Isle of Wight. The group arrived on the Saturday evening and was based in a boarding house on the sea front in Sandown. In the evenings we had a review of each day's events and an overview of the next day's field work.

What a splendid place to see the stratigraphy of the Cretaceous and Tertiary exposed and laid out so conveniently, step by step, layer by layer, from Whitecliff Bay, through Sandown Bay and then on through Ventnor, St. Catherine's Point, Atherfield, along the military road to Freshwater, The Needles, Alum, Totland and Colwell Bays. Exposure of the coast to the constant processes of erosion on either side of the English Channel ensured that every part of the rock succession could be examined in detail. At Sandown the Cretaceous succession ranged from the Wealden Beds to the Chalk, and the Eocene sequence from the Reading Beds to the Bembridge Limestone. Each day we followed the beach around a major part of the Island. We progressed from horizontal bedding through vertical bedding and back again, as we examined the North and South limbs of the Sandown and Brixton Anticlines.

There was much simple fun to be had. One time, on a magnificently hot day, Audrey Naylor and Mavis Wilson, along with other female students, were escorted out of sight around a point in the coastline whilst the males in the party went "skinny dipping" in the nearshore waters. On another occasion, it was demonstrator Audrey Naylor's birthday. She proved to be such a great sport as four of us carried her from her bed, at 7.00am and still in her pyjamas, and threw her spread-eagled into the sea just outside our boarding house. She was a game girl, and was more than able to turn the tables on us as she proceeded to half-drown us all in the waves. I remember clearly that I was carrying only one of her legs, so will the other three conspirators please own up! I have a vague memory that "Sweeney" Todd, big Keith Dunn and John Thomas were involved.

My memories of other field trips and events in the laboratories fade, but they include visiting many of Professor Cope's localities in the Peak District. How fitting that, in 1998, and close to 90 years of age, Dr Cope revised and updated his book "Geology of the Peak District". There are almost 200 pages of his hand sketches of fossils, quarry faces and stratigraphical cross sections. All were as clear as his Foundation Year contributions and his lectures to us as pioneer students in the department, which he created and built up so successfully.

Where to from UCNS? What of my subsequent career? My dream of becoming a geophysicist was not fulfilled. For four years I carried out classified work for the government of the day: research work on semi-conductor infra-red detectors for the Plessey Electronics Co. at their research laboratories near Northampton. This was followed by four years in an interesting post with Mining and Chemical Products Ltd. This work involved the purification of many chemical elements: In, Sb, As, Te, Ga and Bi and the subsequent manufacture of compounds for thermoelectric materials for miniature power generators and refrigeration devices. We also grew crystals of GaAs, InAs and InSb. All this research was at the forefront of world technology.

This spell was followed by three decades back at Plessey in Swindon where I progressed from Manager of Research and Development to Manager of Production for the manufacture of GaAs, LEDs and laser devices. The most important work was the volume production of microcircuits. To complete my career, I spent seven years at the Rutherford-Appleton Laboratory on the Harwell campus near Didcot. I was a senior consultant on site, running a government research programme in advanced processing techniques relating to micro- and nano-technology.

Every day of my research life has been concerned with infinitely large and infinitely small numbers. In retirement, and working with the University of the Third Age, I study and lecture on phenomena with a similar range of numbers, but relating to the Evolution of Universes and the Evolution of Life and Man and our Society in the wider Cosmos. This reminds me, in a 21st Century context, of the aims, the breadth and the interdisciplinary scope of Lindsay's FY programme.

UCNS as a marriage bureau. I must not end without paying tribute to Lindsay's vision of the campus not only as a meeting place of minds but as a nucleus of a democratic society. It was in the first term at UCNS that I met my wife Nancy (née Nutter), a student of Physics and Chemistry 1950-4, and I am happy to report that we are still
soulmates. It is pleasing to see how many marriages like ours there have been.

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My aim in 1950 when I arrived at UCNS was eventually to study Biology and Chemistry but, during the Foundation Year, I found the geologically inclined lectures to be so interesting that I changed my mind. I began studies in Geology and Biology with subsidiary Chemistry and German (Language & Literature).

The content of the lectures was very up-to-date for the time, but we were told that it was possible that most types of fossil life had already been found - which surprised me. Of course, the lectures covered nothing of DNA, or tectonic plates, or mantle plumes, but the concept of Pangea and wandering continents (à la Wegener and Du Toit) were briefly discussed in a wider context.

Subsequently I have kept myself up-to-date with the help of the Open University. This was easy because my husband, Brian (also a founding student of UCNS in 1950-54; Chemistry & Physics), took an interest in Geology and studied for his second degree at the Open University in 1994. As is well known, the Open University science course had always started with a section on Geology and had so captured the interest of many of its students that they went on to complete its Earth Science degree. Brian embarked on this course precisely as a result of the interest he had gained from Wolverson Cope's efforts in the section "Man and his Environment" in the FY Lectures of the 1950s.

I recall that in 1951 the first lectures and practicals of the Honours Course were held in the concrete building which had once served as an army hut. It was situated on the terrace immediately adjacent to the west side of Keele Hall, close to the site reserved for the tree which was to be planted by the Queen (the late Queen Mother) when she officially opened the University College on April 17th 1951. Some of the optical mineralogy practicals were held, however, in a large corner room on the first floor of the main Hall, whose windows overlooked the magnificent autumnal treescape across the lawns and the top lake. I am told that this room has since housed the Vice-Chancellor's Office.

For me the most enjoyable, and therefore the most memorable parts of the course, were the field trips. They combined my two hobbies of walking in the British countryside and landscape drawing. I still keep my practical notebooks, with their many sketches and scaled diagrams. We took many day trips locally and in Derbyshire, but I especially value the memory of the week-long trips to North Wales and the Bristol area.

On all of these excursions, we were lucky enough to be driven by the same quite amiable and brilliant coach driver who soon became a very knowledgeable and tolerant friend. On one occasion, however, the coach met a small car in a very narrow lane and a serious problem arose. It was solved by the group of male students lifting the car into a field and then back again on to the lane behind the coach!

Other memories are fleeting but once, on the shore of the Menai Strait, a member of the party hit a decaying boulder and, as wood lice shot out from beneath it, a colleague, obviously a very beginning palaeontologist in the autumn of 1952, shouted out in surprise: "Look! - trilobites".

Back on campus, it was inevitable that we baked rock cakes for our end-of-term teas and parties.

Four years then seemed a long time, but now seems so short compared with the fifty years that have followed.

Audrey Jones, 45 Coates Lane, High Wycombe, Bucks., HP13 5ET.
BRYAN SAUNDERS: HONOURS STUDENT (GEOLGY & GEOGRAPHY) 1950-54

See Department Photograph 1 and Figure 12.

Landscapes at my doorstep.
My home was at Stourbridge, some twenty kilometres west of Birmingham. From the sitting room there was a captivating sweep of the rural and scenic lower River Stour valley to the west and from my bedroom an awe-inspiring panorama of the urbanised and industrialised Black Country to the east. These were two areas, dramatically different and special, right at my doorstep, and my natural playgrounds during childhood. By the time I had entered the grammar school, they had become vital parts of my consciousness and had initiated the first stirrings of inquisitiveness about the development and character of landscapes.

The Seal is set.
I was fortunate to be offered a place at Grammar School. Like the other children in my area, I went to a secondary modern school after primary school. But in the mid-1940s, along with just over twenty other pupils from secondary modern schools in the southern Black Country, I was transferred to Halesowen Grammar School. Once there we were given an accelerated programme through to School Certificate, and for those who carried on with their schooling, a normal programme through to Higher School Certificate. I received a sound education, with the syllabuses for Higher School Certificate being quite challenging. Hereabouts my deep and particular interests in landscape were well and truly revealed by my selecting (somewhat naughtily I have to admit!) L. Dudley Stamp's 1946 book, "Britain's Structure and Scenery", on being awarded the school's "Somers' Prize in History". The seal was set - at least for the next few years.

On to the University College of North Staffordshire.
The suggestion that I should continue my education at UCNS was made by the Acting Headmaster of Halesowen Grammar School, who reasoned that, as I had been successful in the scheme under which I had entered the school, I would probably enjoy the challenge of participating in the beginnings of a new and experimental Higher Education institution. He was absolutely right. My principal windows on the World were Geography and Geology, a fairly obvious combination given my interests in landscapes. On balance, I was happy with the pairing, and when I left UCNS, I did so without any feeling that maybe I should have taken some other combination of subjects. Some years later, I was interested to read in W.B. Gallie's 1960 book, "A New University: A.D. Lindsay and the Keele Experiment", that a "surprisingly high proportion of students in the early intakes...made use of their experiences of the Foundation Year to change their main courses of study". I certainly enjoyed the Foundation Year programme of lectures, and in addition year-long courses on European History and Chemistry, alongside term-long tasters in Politics, Economics and Geography. Despite all these wide-ranging choices and samples in the Foundation Year, I was never deflected from my intention of taking Geology and Geography at Honours level. These FY courses were followed in Year 2 by subsidiary courses in History and in Year 3 by more Economics, together with Mathematics. It is fair to say that at the end of my time at UCNS, I fully appreciated that I had been through a programme which was something special, and that the experience had been a memorable one, long to be treasured.

Embers from the Past.
Raking over embers from the past is fascinating (although fraught with dangers as age plays tricks with memory!). Here are a few recollections that quickly come to mind:

- my nervousness on first meeting Lord Lindsay at interview;
- the beautiful autumnal views in front of Keele Hall over the lawns and towards the five lakes and woodlands; walks in the grounds of the estate e.g. on the terrace (Figure 12);
- in stark contrast, the raw scene in many other parts of the estate away from Keele Hall where buildings were still being constructed;
- the frenetic prettying-up of the campus for the official opening of the University College by the Queen on the 17th April 1951;
- being completely contented with living in a former army hut;
- wearing gowns at dinner each evening in the original Students' Union building (a semi-circular}
• corrugated-iron shed);

• attending the Foundation Year Ball through the financial help of friends (once fees and accommodation costs had been met, I had only £10 per term left for extras, and most of this went towards buying books);

• pre-breakfast jogs in order to get fit for very competitive football matches against the old-established universities (we even tried ballroom dancing in the belief that it would improve balance and composure!);

• playing a soccer match in a snow storm at the Alsager Teacher-Training College (the game being abandoned shortly after I had scored a goal from a free kick!).

Figure 12. Two Geology students, Bryan Saunders (Geology & Geography), on the left, and Jimmy Preston (Geology & Physics) in the centre and their mutual friend “Slim” Hearnshaw (Subsidiary Geology), take a walk along the Terrace of Keele Hall. For unknown reasons Jimmy Preston was missing from the departmental photograph of the 1950-1954 graduates. (Photograph courtesy of Bryan Saunders).

The Honours Courses.
On the whole I was comfortable with the Geology and Geography courses, though I have to admit that struggling with map projections, wading through a mass of trilobites, and preparing a collection of thin sections of rocks, quite tested my resolve. Fieldwork was always interesting, albeit strenuous at times, and it provided a balanced programme of formal instruction, individual investigations and written reports. All the lecturers seemed to be enthusiastic and keen to do well. Naturally they provided plenty of substance in their presentations, thus setting strong foundations for study. Mind you, I was quite amazed when one lecturer (in Geography not Geology, it must be said) appeared to read his lectures word for word. By contrast, I considered the lectures of Stanley Beaver, the Professor of Geography, but in possession of a degree and a considerable background in Geology, to be outstanding. His presentations were always well ordered, well delivered and in a style with which I readily identified. During my final year at UCNS I gave a seminar paper on the development of the canal systems in Britain, which was so structured on Stanley's style, that afterwards two members of the class came and asked me if I was "taking the mickey". As if I would! My main moan about the lectures in both Geology and Geography was their lack of variation and originality - but then, I could say this about many of the lectures given by my former colleagues at Massey University. I did, however, greatly enjoy and benefit from the courses and options in Cartography and Geomorphology.

In the Field.
One of my long-lasting memories is of the thesis mapping project which I completed on the Geology of the Rowley Hills. These hills form part of the Sedgley/Northfield Ridge in the Birmingham conurbation of the West Midlands.
From my bedroom window at home they formed part of the horizon and I had always been intrigued by them. Formed of dolerite, they had been quarried for years, producing the stone which was known locally as "Rowley Rag". The sight of a stranger, armed with a geological hammer, a clipboard and maps, who was walking around the base of the hills, tapping here and noting there, provided too good an opportunity for the local urchins, who continually raced up to me with cries of "Wot yo' doin' gaffer wi' tha' 'ommer." - all delivered in the local Brummie (i.e. Birmingham) dialect. Whilst working on the project I could not help wandering into the depths of Hailstone Quarry, which was not the most sensible thing to do, for I had hardly touched bottom when I was hastily herded into a shelter as a thundering explosion shattered the peace. I can still vividly picture the scene - and recall the somewhat colourful language used when I was asked what on earth I thought I was doing.

After UCNS: my apprenticeship.

Towards the end of 1954 Denise and I married, and at the beginning of 1955 we left Britain for Adelaide where I took up a teaching position with the South Australian Education Department. Shortly after arriving, I met Graham Lawton, Head of Geography at the University, and he offered me a part-time tutoring position, to teach cartography to third-year undergraduates and to run a practical programme for the first-year students. Thus I began life in Australia not with one job, but with two. I learned many things while teaching at secondary and university levels, and when Denise and I moved on to New Zealand, I felt that I had had an absolutely ideal apprenticeship.

My days at Massey University.

I was appointed to one of the two founding positions in Geography at Palmerston North in 1959 and remained at Massey University until I retired in 1993. I am in little doubt that a big factor in my appointment was the fact that I had been a founding student at UCNS (soon to be Keele University from 1962 onwards). From then on my career was magical, for besides participating in the development of full undergraduate and postgraduate Geography degrees, I introduced from the mid-1970s courses which were the forerunners to the development of full undergraduate and postgraduate Regional Planning degrees. For a few years, before the University changed its degree structures, I organised a full first-year holistic geography programme that was styled à la Keele, in that all members of staff were involved in lecturing and conducting tutorials.

Over the years I had varied teaching commitments, starting off with responsibilities in physical geography and cartography and ending with landscape studies and planning history. Various overseas appointments as visiting lecturer (mainly to the United States and Finland) provided some outstanding moments, for I enjoyed the challenges arising from new situations - free, I should add, from all tedious administrative duties.

Acknowledging my debt.

First and foremost, I have to acknowledge that what I studied in Geology and Geography at UCNS provided me with the passports for gaining attractive offers of employment. As mentioned above, simply having studied at "Keele" was a decisive happening, but I must also acknowledge a deeper and more fundamental debt. The founding of UCNS in such a distinctive way had given me the opportunity for a particular kind of university education and I came to believe that it was also the right of all people to have such an opportunity if they so wished. So I was willing to accept in my first-year classes students who had not matriculated; furthermore, I was willing to forgo prerequisite qualifications of students for my second- and third-year classes. For me interest and commitment were the most important qualities. All this created a fair amount of flak. Quite a bit of counselling was involved, and, if thought desirable, supplementary work advised. I have to say that witnessing the achievement of students who in normal circumstances would not have been able to join my classes gave me a great deal of pleasure.

Bryan Saunders, Emeritus Professor of Physical Geography, Massey University, Palmerston North, New Zealand; now at 67, McGregor Street, Palmerston North, New Zealand.

See Department Photographs 1, 2, 3, 4 & 5 and Figures 11 & 13.

My active 12-year association with UCNS as a student and a member of staff began in the summer of 1950 (Figure 13). I was a sixth former studying the traditional specialised combination of subjects for intending scientists (Chemistry, Physics, Pure Mathematics and Applied Mathematics) at Wolverhampton Municipal Grammar School (WMGS). Five of my sixth-form colleagues and I had obtained information about the founding of a new university college situated on the Keele Estate in North Staffordshire, and we were intrigued by its proposed curriculum. The six of us applied for entry and all were invited for interview. Four of us travelled by train to Stoke-on-Trent and onward by Crosville bus to the North Lodge bus stop on the north of the Keele Estate. However, two doughty interviewees cycled the eighty or so miles round trip from Wolverhampton to Keele and back; in marked contrast to being chauffeured by mother or father, as many of today’s applicants might be.

Recollections of my reception are somewhat vague, except that I was interviewed by Lord Lindsay and the Registrar Dr. W.A. Jenkins, and possibly with Mrs Joan Morton, Lord Lindsay's secretary in attendance. Some short time after the interviews all six of our schools’ applicants received and accepted offers of places for entry in October 1950. Out of 159 entrants, six from one school is possibly unique. Three of this group, Bryan Alderson, Keith Dunn and myself, went on to graduate with Geology as one of their Principal subjects! I was awarded a full and generous grant from Wolverhampton Education Committee to run for four years of study, without which I would not have been able to enter full-time higher education.

I arrived on a nascent campus on 16 October 1950, along with the 158 other "pioneer" students. (One more student arrived next day). In view of my sixth-form experiences, my programme of study in the Foundation Year was to include Chemistry, Physics and Mathematics as Terminal subjects, with Classics and Political and Moral Philosophy as Sessional subjects. During the Foundation Year, however, I joined that significant number of students who, in the 1950 intake, changed both of their intended Honours’ Degree subjects. The late Professor Ian Sneddon’s "take-no-prisoners" approach to Terminal Mathematics convinced me that his was not the subject for me; nor was Physics which so depended upon it. For Years 2 to 4, I opted instead for an Honours Course combination of Geology and Biology, the latter subject proving, regrettably, to be an academic "short leg". Unfortunately I had discovered that my preferred combination, of Geology and Chemistry, was not an available option in 1951-2 because the Chemistry Laboratories had not yet been completed.

After a science-based sixth-form background, the breadth of my Foundation Year programme proved to be a challenge. Juggling the work for five subjects, and switching daily or weekly from one train of thought to another, was quite taxing; the intellectual jump from Kantian ethics (Professor Teale) to the physics of thixotropy (Professor Vick), to ancient Greek art forms (Mr Charlton), certainly improved one's ability to gather, and quickly appraise, a wide range of information, not to mention meeting the tight tutorial deadlines.

Despite these demands, we managed to make good use of Mr Stewart’s ever-expanding Library in Keele Hall.

David Thompson has summarised the curriculum of the Geology Honours Course in his Introduction to this booklet. The course was supported by impressive rock, fossil, mineral and map collections, assiduously assembled by Professor Cope and meticulously curated by Mr Dennis Leverett, the Department’s first Chief Technician. Practical examination and revision materials were drawn from these collections and included hand specimens of brick and concrete (the latter of which could be mistakenly identified as Hertfordshire Puddingstone and was slipped into a Finals Examination practical in order to deceive the unwary!).

Memories of lectures, tutorials and practicals are many, even after fifty years have elapsed:

* Dr Frank Moseley’s cheery "we-are-all-learning-together" delivery of mind-numbing crystal symmetry systems and the mystifying construction of stereographic projections.

* Dr Tom Burnaby’s presentation of the intriguing morphologies of the Foraminifera and Radiolaria, and the scarcely disguised amusement we gave him in our attempts to memorise their names.

* Dr Maurice Stone’s erudite presentation of the metamorphic rocks - no quarter given - supplemented by his
searching tutorials, in which we were actually asked to think critically. "Read H.H. Thomas's paper on the unroofing of the Dartmoor Granite and come back next week to explain the flaws in his conclusions." Could there be flaws in a published paper?

* T.G. Miller’s "trash" through his part of the stratigraphic column, geosynclines and all, and his artistic but predictive cartoon cross-sections through various parts of the British Isles that anticipated the Plate Tectonic models of over twenty years later.

Fieldwork was always considered to be of paramount importance in the Geology Department’s Honours course (Cope 1970) - even in its early days when student numbers were high and numbers of academic staff were low. The Keele Estate and its surroundings provided suitable grounds for local fieldwork and geological mapping (on a scale of 1:10560; six inches to one mile), and particularly for teaching the "art" of feature mapping. Professor Cope’s long (16 years’) experience of such mapping with the Geological Survey of Great Britain ensured that the nuances of this technique were well learned. The sight of a horde of geology students roaming over the Keele Beds (often lying prostrate in the mud as the sun sank low in the west, in order to pick up the accentuated bevel made by a band of Spirorbis limestone) must have raised the curiosity of many a local villager; some Druidic practice perhaps? Wet afternoon outings to the local Etruria Marl pits, with their intermittent sandstone "espleys" often resulted in marl-coated students, but, amazingly, Professor Cope invariably emerged as immaculate as when he entered, with his customary beige-coloured windcheater remaining spotless. Day trips to Derbyshire and the Staffordshire / Derbyshire border further extended our fieldworking experience. Our leader punctuated the day with such practical tips as "Note the vegetation change across the Shale/Grit and Carboniferous Limestone junction. This area is best mapped after a light fall of snow which emphasises the topographical features". On one such excursion, a misguided female student arrived shod in high-heeled shoes; hardly the footwear for searching out the Gastrioceras subcrenatum Marine Band in a waterlogged stream bank. Fieldwork and Geology were not for her!

Field classes in the Easter Vacation provided experience of a wider range of rock types and geological settings. At Easter 1952 the field class was led by Drs Cope and Moseley, and was centred on Bangor, North Wales. There were excursions to Snowdonia (Figure 13) where the Williams brothers had

![Figure 13. John E. Thomas Honours Student 1950-54; Demonstrator 1956-57; Assistant Lecturer 1957-62. The photograph was taken on a field excursion to North Wales. (Photograph courtesy of Mary Bianco (née Becker).](image)

revolutionised the study of the Ordovician volcanic rocks, and to Anglesey, which had been so meticulously mapped for the Geological Survey as a labour of love by Edward Greenly. Apart from the geology, other recollections come to mind:

- Dr Moseley’s memorable 200-yard competitive sprint from the Bethesda Slate Quarry to our coach,
knowingly (or unknowingly - see Dr Moseley's contribution) carrying a huge piece of Cambrian slate secreted in his rucksack by certain students - and his still ending up as victor in the race.

- The temporary loss of a female student during a sandstorm on the Newborough Dunes in Anglesey whilst the remainder of the party was searching for and investigating the pillow lavas. She had become detached from the file indienne of students, only to be found in some distress by a local farmer who escorted her back to our coach to await the return of the main party.

- My discovery of a specimen of a Carboniferous brachiopod on the cliff top adjacent to South Stack lighthouse (which is built on rocks of the Precambrian South Stack Series). This "interesting" find was immediately assumed to be a "plant" made by myself. My protestations that this was not the case were not accepted, neither was my suggestion that a previous party must have planted it. The South Stack Series remains Precambrian in age!

- The Honours Year 2 Easter Field Class of 1953 (led by Professor Cope and Chris Barron) was located in the Bristol area with accommodation in Bristol University's Wills Hall of Residence. The hall was luxurious, with meals served by white-coated waiters, one of whom delivered a soft-fried egg with such panache that it was propelled from his platter to the back of a breakfasting student's jacket. How feather-bedded we were in those days! The Geology that we studied ranged from Ordovician-Silurian, through to Jurassic and Trias, including excellent and abundant finds of Carboniferous plant remains from the Radstock Coal-Measure Basin. Memories include:

  - Demonstrator Chris Barron's new and expensive thorn-proof suit, the efficacy of which he demonstrated by backing with much bravado into hawthorn and bramble bushes in a disused quarry.

  - The finding of a new genus/species of crinoid (? near Dursley) that was sent to the Natural History Museum in London, and which, I believe, was named after its student discoverer, Mr K.B. Ellis.

  - The placing of several horse shoes (from a smithy in the village of Aust) into Chris Barron's luggage as he left for his forthcoming marriage and honeymoon.

  - The sampling of unaccustomedly rough cider (at only 2d per pint) during one lunchtime stop prior to studying the Carboniferous strata in Burrington Combe in the Mendips (see Dr Moseley's confession). Hereabouts we discovered that "Rock of Ages" was not cleft for us - rather were one student's posterior parts (after an uncontrolled slide down several bedding planes, and our coach's rear window). The latter was cleft during an impromptu war dance by a slightly inebriated student. Thereafter scrumpy was off the lunchtime menu!

  - My mnemonic for recalling Vaughan's coral zonation of the Lower Carboniferous Limestone in the Bristol area: Down South Coral Zones Keep (Dibunophyllum, Seminula, Caninia, Zaphrentis, Cleistopora).

  - For my Final-Year Easter Field Class in 1954, I accompanied the Principal Year 2 students to Arran (an excursion led by Terry Miller and Frank Moseley). This was because I had on a previous occasion (the Geological Society of London's student geological tour) visited the Isle of Wight, which was the location of the final-year field class for the 1950-54 intake.

In addition to the marvels of Arran's geology, I recall:

- Wading up to the waist during a short cut across an in-spate Sannox Burn, on the return journey round the northern end of the island past Hutton's unconformity. This was led in true military style by Terry Miller - with hammers held high above our heads.

- The sight of Frank Moseley careering down the String Road on a borrowed bicycle after having been left behind in the Corrie Hotel nursing an injured ankle - the machine stopping only by means of his plunging into a roadside bog.

- The postal exchange of keepsakes between the Isle-of-Wight field party and the Arran group; namely one inscribed brick made of Eocene clay baked in the southern party's hotel oven, and in return a sheep's skull
from the group in Scotland.

Much basic geology and many techniques of investigation and analysis were experienced and learned on these Easter field classes; they were definitely not all "beer and skittles". It says much for the commitment of the academic staff as leaders of these field classes bearing in mind the small number of staff available. Their enthusiasm on these occasions contributed greatly to the ever-cordial relations that existed between staff and students.

During the three years of the Honours course, I opted to study Chemistry, French and Geography as Subsidiary subjects - the first two in the first year of the Honours course, and the third in the second year. The whole programme proved to be a very heavy workload, each Subsidiary being studied at the same time as the two Principal subjects which were new to me.

Formal academic demands may have been time-consuming, but they did not exclude involvement in ex-curricular life of the university. My Students' Union activities included acting as the Secretary of the Student Shop under the watchful eye of Mrs Dale, the shop manageress. Duties included: the counting of ration book/emergency-card food coupons (war-time rationing was still operative up to and including 1954); collating the various bureaucratic categories (Ds, Es etc) and monitoring the sale of alcoholic beverages.

In addition I served as the secretary to the Students' Geological Society and still remember an exchange of correspondence (still in the Society's files?) with Professor W.G. Fearnside. I had written to ask him whether he would be prepared to lecture to the Society on a topic of his choice in relation to Economic Geology. I was totally taken aback, and not a little aggrieved, when I received his letter of reply, which stated that it would be time enough to consider Economic Geology when our members had learned the rudiments of basic Geology and that, in any case, he had no intention of crossing the Pennines (he lived in Sheffield) in midwinter to deliver a student lecture. I showed the letter to Professor Cope whereupon he roared with laughter and said, "That's typical of 'Bones' (Professor Fearnside's nickname); his bark is worse than his bite."

As at school, football and cricket continued to be my non-academic forms of relaxation; they provided me with some of my happiest times at UCNS. Travelling to away games with the College teams provided a welcome respite from the somewhat cloistered life within the walls of the Keele Estate. For a couple of years I was captain of the college's First XI soccer team and an occasional member of the First XI cricket team (my highlight being a contribution to the defeat of Sheffield University first team). In addition I sat on the Athletic Union committee for one or two years.

A major part of my vacations was taken up by Geology and Biology field classes: two field classes in each of my Easter vacations in 1952 and 1953; one in the Easter vacation of 1954; one in the Summer vacation of 1952; a 3-week geological tour of England (organised by the Geological Society of London) and a 6-week independent mapping project in the Summer of 1953. This fieldwork programme left little time to earn extra income from temporary jobs (fortunately my grant was generous and the expense of field-classes was also borne by my LEA; I kept solvent).

During my four years' residence at UCNS, I experienced every category in the hierarchy of accommodation; from army hut to brick-built bungalow, and finally to the relative luxury of a new annexe at the Hawthorns in Keele village. Friendly rivalries developed within and between the occupants of the different units of accommodation. Such competition led to members of Lindsay Hall kidnapping the Hawthorns' cast-iron mascot (Soranus) and the retaliative commandeering of Lindsay Hall's kegs of beer and cider. In my experience, the mainly residential nature of the College promoted discussion and collaboration between students and staff, and went a long way to achieve what I believe was one of Lord Lindsay's primary aims - the pursuit of knowledge and understanding amongst friends - which was espoused in his welcoming address on the 16th October 1950.

After graduation I spent over 40 years as a teacher. My experiences ranged from work in secondary modern and grammar schools to those in university teaching and research. Over six years I progressed from being a research student and demonstrator to holding an assistant lectureship in the UCNS Geology Department. This was followed by 34 years at Reading University as a lecturer, then senior lecturer, involving on the way the Deputy Directorship of the Geological Research Laboratories, and finally the Headship of the Geoscience Teaching Unit. Over the years, I taught courses in optical mineralogy, metamorphic petrogenesis, isotope geochronology, and geological mapping. My research interests were in the fields of igneous petrogenesis and analytical geochemistry, the latter requiring
the setting up and management of an analytical geochemistry laboratory. I retired in 1997.

Throughout my career, my experience and training as a student at UCNS provided me with a sound foundation. The wide range of disciplines in my degree programme proved to be a help not a hindrance, and it contributed greatly to my personal development. Some critics maintained that UCNS' early graduates were "jacks of all trades and masters of none". I think that the subsequent careers of the first twenty years of graduates, including those from the Geology Department, belie this view.

One of the editors of this booklet has suggested that the contributors might reflect overall on Keele's contribution to the development of university education. This perhaps presents a task that is beyond most of us. However, it does appear that the implementation of Lord Lindsay's philosophy of university education was stymied, even at Keele. This was caused firstly by the financial cuts made by the University Grants Committee in the late 1960s and secondly, by the continuous changes that finally led to the abandonment of the Foundation Year after fifty years. A 4-year course for an Honours Degree became a much cheaper 3-year course.

Since the granting of its first Charter in 1949, UCNS's leadership in influencing changes at other universities and the curriculum and organisation of new ones (at Sussex, Lancaster, East Anglia etc.), was probably at its strongest until the late 1960s. After this time, with matters of finance, accountability and measurable output shaping philosophy, its influence must have inevitably declined. Perhaps we should have been asked to reflect on the overall contribution of the College's and University's graduates of the first twenty years to society as a whole, but then that would be the substance of another booklet and not just related to the evolution of the Geology Department.

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I was born and grew up in South Manchester and was educated at state primary and grammar schools. By a stroke of good fortune the latter was the Central High School for Boys. Despite this, and like so many of my day, I was ill-advised with respect to entry to the sixth form and settled on a horrendous mixture of subjects: Geography, Latin and Art (Architecture option). Latin was chosen because of the persuasions of one of my schoolmasters.

Fortunately, I was taught Geography by Norman Horrocks and Malcolm Sinclair, each of whom possessed separate London BSc degrees in both Geology and Geography. At the time the former was writing an introductory textbook on Physical Geography (Horrocks 1955?) and he took the bold step of asking me to provide a critique of part of his text and diagrams. He even had me undertaking some research in the centre of the city after my Higher School Certificate examinations. In the year in which I left grammar school (1950), he established one of the earliest, most distinguished and enduring school Geology Departments (Thompson 2000). Despite these influences, I had no idea of ever applying to a long-established Geology department in any of the traditional universities; I only knew that I wished to teach. I seemed destined to read Geography with an economic bias, and all my applications were to this end.

The University College of North Staffordshire (UCNS) was only one of the ten or so places to which I made applications for a university place. There were some refusals but many institutions cautioned me to "wait until your results are known". My HSC grades were as follows: Geography "Distinction" (and "Very Good" in the Scholarship papers); Art "Good"; Latin a hardly-survived "Pass". Despite these modest achievements, a City Scholarship was awarded, perhaps influenced by commendations relating to leadership and prowess at soccer and cricket.

Meanwhile, many interviews had been attended, including one on a dank foggy day in the winter of 1949-50 which was conducted by a very tall, broad-shouldered, ruddy-faced, genial old gentleman with kind and twinkling blue-grey eyes. It took place in what I now know was the Brew House at Keele Hall. He told me that the surrounding estate was to form the campus of the new University College. We chatted amiably about all manner of things which presumably illuminated the limits of my youthful horizons and ambitions. To my surprise he concluded the meeting with a firm offer of a place in an institution which, he claimed, would be different and likely to be exciting. It was only later that I realised that I had been interviewed by the 70 year-old former Vice-Chancellor of the University of Oxford who, a few years back, had stood as a modestly successful Independent Progressive parliamentary candidate against Chamberlain’s Conservative policy of appeasement of Hitler. He was Lord Lindsay, the Principal to-be of UCNS!

When the results were available, I was inundated by offers of a university place in Geography. Despite the fact that the Professor of Geography at UCNS was to be Stanley Beaver, the distinguished Reader at the London School of Economics, my schoolmasters were aghast when I decided, stubbornly and against their firm counsel, to accept the offer made by an old man whose pedigree and vision I still did not fully comprehend. I can only think that Lord Lindsay of Birker had made a great impression on me. His humanity and unpretentious approach had established a bond; I wanted so much to keep to his bargain offer - and my parents, unknowing of other socially desirable possibilities, allowed me to proceed. It was my first big personal decision in life; one which I have not regretted.

The Foundation Year (FY) at UCNS provided a rich fare and was a turning point; the unique experience it was planned to be. I was captivated by its width and depth. In the lecture course (and related reading) I was especially impressed by the enthusiastic introductions provided by a succession of professors concerning the nature, origins and workings of the natural world. I was inspired by the way in which knowledge had been hard won and by the ways in which such investigations had been carried out by astronomers, physicists, chemists, biologists and geologists. I was fascinated by the twists and turns which had marked the understanding of the atomic theory, the discovery of the elements, and by the evolution of the planets, the earth’s surface and its myriad forms of life. The possibility of continental drift, the likelihood of a contracting earth, the counter arguments for an expanding earth, blew the mind. The origins of Archbishop Ussher’s age of the Earth and the biblical account of its early evolution gripped my attention. The ideas of Lamark, Erasmus and Charles Darwin and others on the transmutation of species fascinated me. I gained a good idea of how all this related to the culture and history of successive civilisations and the industrial revolution. We read widely, often buying affordable Pelican/Penguin books on a myriad of subjects. In the year-long sessionals, I took the chance to study Biology for the first time (in those days in many boys’ grammar schools this was a girls-only subject!) and was willing to open my mind to the insights.
provided by English Literature (alas, to little avail it must be said - no wonder, when we were required to read, and be capable of discussing, for example, two Shakespearean plays per week!). Term-long taster tutorials in Economics and Psychology stretched the mental sinews but added to the rapidly growing width of view. I cannot recall that I was involved in keeping up to standard in Geography, but I had already cultivated a taste for Earth Science.

At some stage in FY I seem to have managed a short introduction to Geology. I recall the first meeting quite vividly - possibly the first class in Geology ever held in UCNS. It was conducted in a small bare squarish room in the concrete huts sited on the former sunken garden and fountain, with the students sitting in a circle on metal-framed, canvas-seated utility-type chairs. Dr Cope explained that minerals were the building blocks of rocks and could be identified by simple tests which he proceeded to demonstrate, using a wooden box full of small samples and simple implements: a nail file, a finger nail, the back of a tile, a magnet, a bottle of weak acid etc. I guess that he had used this boxful with many a WEA class before this particular day. Distinctive shapes were said to be diagnostic and samples of a bright-green mineral were passed around, followed by others, which were dull-red. The first feature was said to be diagnostic of malachite, a copper ore, and was termed botryoidal, whilst the latter was diagnostic of haematite, an iron ore, and was termed mammilated. For the life of me, and even to this day, I couldn’t see much of a difference!

There was a written examination at the end of FY. To our amazement, Lord Lindsay, sitting alone, interviewed a large section of the student population after the papers had been marked. I recall that he spoke favourably of my efforts to discuss the pros and cons of establishing hydro-electric schemes in various situations and his queries and comments showed that he had carefully read my examination script!

Now came the critical time: one of decision making regarding Principal subjects to be studied at Honours level. Geography was still likely to be the main choice; Economics was not. On the other hand I had been greatly taken by the scholarly, enthusiastic teaching of Prof. Alan Gemmell (a gifted presenter) and his equally gifted and genial colleague Dr Ron Evans (an avid Welsh rugby fan and a cogent bar-room pundit). The question was “Should I change not just one but two of my original likely choices?” In the end, worried about my ability to cope in an untested environment, I chose only to take on one totally new subject: Geology. After all, I could still study Biology as a Subsidiary subject for a second year. There was no need to fill in an application form or attend an interview to join the Geology and Geography Departments. There was free choice; one just signed on; hoping to be a round peg in a round hole.

How did the course work out? To me it had all the strengths and some of the weaknesses of a first run. The enthusiasm of the staff and most of the students was paramount. Obviously the staff would learn from this first experience when the second and third cohorts were in residence. Dr Cope proved to be a gifted administrator. Relationships with virtually all the staff were excellent. Frank Moseley was very approachable and outgoing as befitted an ex-RAF Blenheim bomber pilot, a still-active rugby player and a contender to be the United Kingdom’s pole-vaulter at the 1948 Olympics. Bob Barrass (a war-time army pilot who had been awarded a Military Cross) and Peter Shelford were more reserved but very professional. "T.G.M." (Terry Miller) was very supportive to one who was so keen to learn; always spending time and offering encouragement and new ideas. I always remember his final advice (as a glider pilot who had survived Arnhem) to one so youthful-looking and naive: “When you go to do National Service, join the Pioneer Corps”. To this day, I still ponder what he meant! Alec Trendall was another vigorous outdoor type. Maurice Stone was calm, cogent and authoritative. Despite his increasing asthma, Tom Burnaby introduced us very competently to the intricacies of invertebrate and vertebrate palaeontology, including the mathematical analysis of the evolution of some of the shapes of the hard parts. His last lecture was delivered on the day before the first paper of the Finals examination! Audrey Naylor and Russell Coope were keen and attentive demonstrators.

When a UCNS Double Honours course had to make do with two-thirds of the time allocation of a Single Honours course elsewhere, emphasis had to be given, in Lindsay’s vision, to basic things: a working knowledge, concepts, principles and methodology whilst students learned to recognise and solve problems by hypothesis testing and the application of appropriate theories. Key skills and techniques needed to be acquired both in the lab. and the field: how to observe; to manipulate the petrological microscope; to practise mapping techniques; to draw scaled, orientated, annotated diagrams of crystals, minerals, rocks, fossils, structures etc.; to interpret and use geological maps; to process vast amounts of data. We were lucky in that North Staffordshire and surrounding areas were replete with rocks of all ages and kinds save good outcrops of metamorphics. I have never felt that I was sold short on the basics of geological analysis. Indeed, I could argue, with hindsight, that we went over the top with
stereograms of crystal faces and tectonic problems, and with calculating Cross-Iddings-Pearson-Washington norms from chemical analyses. We were alas too meek and inexperienced to query why we were to draw to scale and identify c.50 trilobites in one 4-hour lab. session. The traditional stratigraphic treatment of the geological history of the whole of the British Isles from PreCambrian to Tertiary, was excessive and soon palled, despite Terry Miller’s gifted teaching and artistic skills (see his book of 1953). Principles of stratigraphic analysis and case studies with a much more palaeoenvironmental bias, in the manner of the sedimentology and sequence stratigraphy of the 1990s, would have been better appreciated. A thesis report based on interpreting the geological history of a mapping area was well justified (the Namurian Millstone Grits and Shales of the New Mills-Hayfield area of Derbyshire in my case) and counted as one of the six finals exams. Alas, it proved to be a burden to some students if the other Principal subject, e.g. Biology also demanded the completion of a similar project! The coursework requirement to personally collect and prepare a dozen or so thin sections (on the Loch Borolan Complex in my case), and to write a report on their significance, was equally sound. The only area which received less than adequate measure, in relation to Lindsay’s vision, was the study of economic applications and case studies of instances where Geology was the key to solving some of society’s problems. Indeed, Quaternary rocks, arguably the best and most completely preserved, and the foci for so many professional and commercial assignments, were grossly neglected (except in my Geomorphology option in Principal Geography). It could be argued, however, that sufficient practical problems were encountered and discussed at the field locations which were visited.

The choice of my field mapping area was interesting in relation to future events. I had suggested the Styal-Alderley Edge area (of Triassic and Quaternary rocks). Dr Cope, however, said that this patch had been recently mapped by District Geologist Dr F.M. Trotter, by whose work I would, perhaps, be too easily influenced. Thus we settled on the Hayfield-New Mills area, last mapped by Edward Hull (partly on horseback) in the mid-1800s, but not before I had determined that one day I would map the Styal-Alderley area myself on the 1:2500 scale. I achieved this objective many years later, from 1962 onwards, as part of an MSc. based at Manchester University, and whilst I was a grammar-school science teacher.

Opportunities for extra-curricular activities abounded. Between 1950 and 1954, estimates vary, but between 24 and 37 student societies had been founded by the 600+ students - mostly in the first year. The origins of the student Geological Society cast an interesting sidelight on the ethos of the times. There was a prolonged debate regarding the founding of an overall Science Society in conformity with Lord Lindsay’s vision of interdisciplinary cooperation or, in contrast, the organisation of separate societies e.g. a Chemical Society, a Geological Society etc. True to the Principal’s ideals, I argued for an overall Science Society without sections, but in common with a few other souls, I was greatly outvoted. The first meeting of the student Geol. Soc. was in November 1951 when Dr Geoff. Nichols, a geochemist and a very lucid lecturer at Manchester University, came to speak on "The Atomic Structure of the Silicates", at that time a novel topic being worked on by Deer, Howie and Zussman of that place. During the course of his talk, a 2 x 3.5 inch glass lantern slide was inadvertently dropped by the student projectionist, thus enabling John Thomas, the student secretary, who was acting as chairman, to comment that, since the slide was not broken, the silicates were clearly of a very stable atomic make up! I well recall the trepidation occasioned that night by the delivery of my first-ever public vote of thanks. I concluded by suggesting, rather lamely, that in departing to our former army huts on a very cold night, we might contemplate the onset of a further Ice Age.

Another extracurricular opportunity arose when Dr Cope announced that there was to be an interesting meeting one Friday evening at the Manchester University student Geological Society. Were there any students and staff who would wish to avail themselves? Philip Herman, John Thomas and myself, and two others, together with Dr Frank Moseley, immediately volunteered. Dr Cope filled the five seats of his ever-gleaming Daimler (or was it an Armstrong-Siddeley by then ?) and it was arranged that I, as overspill, would travel (suitably wrapped up) as a pillion passenger on the back of Dr Moseley’s 500cc trials’ motor bike (a "BSA" made by the Birmingham Small Arms Company which he was currently using in his mapping of the Borrowdale volcanic rocks of the Lake District). December 6th or so was a freezing day heralding a starlit night, but Dr Cope insisted on opening the sunroof of his car, citing the need to "let in some fresh air". The back-seat passengers were frozen by the time Kidsgrove was approached! The attraction in Manchester was a double bill: a verbal joust between Dr Doris Reynolds and Prof. William Alexander Deer on The Origins of Granite. "Per Migma ad Magma" (a phrase coined by H.H. Read) was the hot debating point of the day. The student president, in introducing the proceedings, said that he had thought to do so in the manner of a professional boxing match, but had withdrawn the idea because it would have required the revealing of the distinguished lady’s weight! The talks lived up to their billing and we were suitably impressed by the width, depth and nature of the geological arguments. The next day there was a soccer match at home (against Nottingham University?), I discovered that I still hadn’t recovered from the hypothermia induced by the
bike ride! Further contacts with the geologists of Manchester University were made in the vacations, notably in 1953-4 with Dr F. M. Broadhurst. He was preparing a paper on deformed cross bedding found at a locality on my mapping area at Hayfield. This was at the beginning of my interest in sedimentary structures and led, many years later, to the co-authoring of a textbook on such subjects.

As part of its programme, the Geological Society organised field trips at weekends and these complemented those of the formal teaching programme. At this distance, it is hard to distinguish one from the other. We visited Dr Cope's stamping grounds in the White Peak (e.g. the Carboniferous limestones, reefs, lava flows and mineral veins of Monsall Dale, Castleton, Ecton Hill and the Manifold Valley, the Waterswalls volcano near Buxton) and in the Dark Peak (e.g. Mam Tor; The Roaches, Congleton Edge, the Goyt Syncline around Goyt's Moss and further north near Whaley Bridge). We investigated the Pre-Cambrian rocks of the Wrekin and the Ercl with Alec Trendall; the Ordovician-Silurian shelf deposits of the Onny River and the Silurian reefs and trilobitic mudstones of Wenlock Edge and Millichope, as well as the Aymestry Limestone. Nearer home, the Coal Measures of Apedale and the Metallic Tileries’ quarry near to Parkhouse Colliery, the Bunter Pebble Beds of Acton and Trentham (with their derived fossils said to have originated from outcrops now sited in the English Channel and northern France!), and the Tertiary Dykes of nearby Hanchurch, Butterton and a location recently discovered by Dr Cope within the sewage works on the Keele campus, caught our interest. The Jurassic outlier at Prees in North Shropshire deserved a visit because Dr Cope's young son, John, was reputed to have recently extracted five hitherto-unreported ammonite zone fossils.

A further unexpected extracurricular activity was occasioned in 1953 by a letter to Dr Cope from Prof. Leonard Johnston Wills of Birmingham University who had recently published a book on "The Palaeogeography of the Midlands" (1950). He was in the last stages of compiling a further work, "Concealed Coalfields" (eventually published in 1956). He had read of the "Keele Breccia" in old accounts and was keen to evaluate the palaeogeographic significance of this rock. He asked Dr Cope whether an investigation could be mounted to throw light on various hypotheses he had in mind. Wolverson was determined that his new Geology Department should rise to the challenge and asked for volunteers to man a working party on a Saturday and Sunday in mid-term. Several students, myself included, were keen to take part and Alec Trendall needed little persuasion to act as team leader. A locality in the Keele Sandstones depicted on the 6-inch geological map was identified by Wolverson on the Old Madeley Manor site (just off Manor Road). Relevant field notes of the site were compiled before several large samples of sandstone and breccia were transported to the lab. It must be admitted at this stage that the breccia was unlikely to be anything but an intraformational, largely mud-clast, breccia of local fluvial origins and was unlikely to yield data which could be interpreted in terms of provenance, tectonism and direction of origin of its clasts. Nevertheless, for the rest of the weekend and one or two evenings afterwards, every possible kind of technique known to Alec and Wolverson was applied to the sub-samples: scrutiny and measurement of size and orientation by hand lens; particle size analysis by sieving and graphing on probability paper; sphericity and roundness of the grains; thin-section making; point counting of the sandstone particles; heavy-mineral separation and semi-quantitative analysis of the results; use of acids; partial chemical analysis; the writing of a brief report on the possible environmental origins of the sandstones and larger clasts. For the students it was a chance to see how a geoscientist might go about testing some prime conjectures and hypotheses. We were all quite chuffed with all the facts and ideas which were unearthed and tossed about. Alec's enthusiasm for our chosen subject was infectious!

By the summer of 1953, it was apparent that the department lacked a wide range of hand specimens and thin sections with which to teach the finer points of igneous and metamorphic petrology in the final Honours year. In order to remedy this deficiency at the least cost, a rock-collecting expedition was conceived. I was more than pleased to be offered the opportunity to read key papers and prepare copies by hand (no Xerox machines in those days!) of the geological maps for a dozen or so classic localities in Scotland. A robust Standard 10 car with a rugged frame and a capacious boot was hired. I was to accompany Frank Moseley and Robert Barrass on the trip of a lifetime. No M6 in those days. Hard going to the first stop:

- at Dobbs Linn near Moffat (stories of village schoolmaster Charles Lapworth; half a dozen ammunition boxes filled with shale samples of the Ordovician-Silurian graptolite zones);
- on to sample the Lugar Sill (Carboniferous; dolerite; density stratified);
- to Garabal Hill (Nockold's gabbro crossed by vogesite dykes);
- to Crianlarich to put the first drop of ammo. boxes on the railway;
- to Inchnadamp to make obeisance in failing light at the memorial to Peach & Horne (the Moine Thrust complex; sampling the mylonites of Knockan Cliff; Murchison's v. Lapworth's structural ideas versus those revealed by the mapping of the Geological Survey's twin geniuses);
• to climb and hammer the face of the Loch Borolan Complex (syenite with its ledmorite base);
• ever onward on "A" class roads which had no metalled surface and had blind right-angled bends every few hundred yards; to Scourie and Laxford Bridge to collect Lewisian gneisses and dyke rocks of various compositions and ages which had recently been disentangled by Sutton & Watson;
• to sample the spectacular outcrops of the Torridonian Sandstones, then being studied by Sandy Stewart;
• to the Cambrian Pipe Rock and the Durness Limestones on the north coast (that man Lapworth again);
• across to Bettyhill to collect samples of the metamorphics of the Moine complex then being worked on by Chinese geologist Yu Chi Cheng;
• southwards and another big climb to collect the many variants of the Ben Loyal syenite.

At this juncture, it is appropriate to mention the more-than-useful roles in widening my Earth-Science horizons played by my study of Geomorphology and Meteorology/Climatology in the Geography course and Soil Science and Ecology in the Biology Department. In the Geomorphology Option taught by Dr Ted Yates there were just two students who each received a thorough grounding in the pros and cons of the hot topics of the day: Davison Cycles (Youth, Maturity and Old Age) versus a stratigraphic approach to peneplanation of Wooldridge and Linton; the desert pediplanation processes of Lester King; an Ice-Age chronology of river terraces in relation to moraines (the Gunz, Mindel, Riss and Wurm of Penk and Bruckner); the Keele interfluve plateau surface (a peneplain of Yates or in Cope’s view an exhumed sub-Triasic unconformable surface). During this time the glacial and post-glacial Geomorphology of the area was being thoroughly researched by Yates and Moseley - a fine example of interdisciplinary cooperation and endeavour which would warm the heart of Lord Lindsay. The meteorological/climatological course taught by Dr Monica Cole augmented my sketchy school-based ideas of how the various components of the Earth System interacted. This was to have career consequences as will be seen later. It is no surprise to learn that Prof. Alan Gemmell (of the BBC’s Gardeners’ Question Time) included a good deal about soils in his contribution. After the Subsidiary examination papers had been marked, he paid me an unexpected compliment: “You seem to know an awful lot about soils”. Perhaps he spoke to me so openly because I happened to be one of his family’s baby sitters - a useful function performed by many students at the time. I well recall reading bed-time stories to his son Alastair Gemmell (subsequently a well-respected Senior Lecturer at Aberdeen University). He always interrupted me to observe that (in my trying to shorten the activity) I had missed out parts of the account!

Being fit and vigorous outdoor types, not the least of the extracurricular contributions of the students of the Geology Department were those relating to membership of the nascent university soccer and cricket teams. John Thomas (half-back) was the captain in 1950, 1951 and 1953, and myself (a forward) in charge in 1952. Bryan Saunders and Jimmy Preston (Principal students; half-backs), Don Ellison (Subsid.; winger), Eddie Derbyshire (Subsid., half-back), John Gregory (Subsid.; centre forward), Usman Shah Afridi (Subsid.; half back) and Brian Stokes (Subsid.; full back), Brian Lawton (Subsid.; forward), Len Woodford (Subsid.; goalkeeper) formed a disproportionate number of the keen and effective players who took on the established might of first Birmingham and later Loughborough.

The cricket teams included John E. Thomas and Harry Heaney (Subsid.), as batsmen, John Turner (Subsid.) (as medium-fast bowler) and myself (opening bowler and occasional captain). John Lloyd (subsid.) served as tennis captain. J.K. (Sweeney) Todd was a pillar of strength in the rugby XV. Probably several of the female geology students played for the netball, hockey and tennis teams, but no accurate intelligence is to hand apart from those of Margaret Float (née Blake) (netball and table tennis), Mary Bianco (née Becker) (netball), Mavis Fox (née Wilson) (table tennis), Pauline Yardley (Subsid.). John Thomas and I served for 4 years on the Athletic Union Committee.

In 1953, in honour of our lately departed and much-loved Principal, Lord Lindsay, a match was arranged with the Balliol College XI, in Oxford. This was organised by me as captain and was aimed at acknowledging our mutual connections. A keenly fought game ensued and a very convivial evening followed. I managed to fix our overnight stay at a YHA in a nearby Oxfordshire village. Memory fades. Was the location the village of Charlebury, or was it the hamlet of Churchill? - the childhood home of geologist William Smith (who, I learned later, as a young boy learned to play marbles with smooth-shelled Terebratulid brachiopods!)

After my graduation, Terry Miller and Tom Burnaby, with the blessing of Professor Cope, arranged for me to go to Cambridge to be interviewed with respect to studying for a Ph.D at one of the colleges. I visited Emmanuel, Trinity and Magdalene. My credentials were scrutinised by Prof. W.V. Lewis (of glacial and coastal geomorphological fame), Prof. W.B.R. King (the former head of the Geological Unit of the British Army) and by Dr Maurice Black (the
sedimentary petrologist). The last-named proposed research on the Carboniferous Limestones between the Lake District and Southern Scotland, but this did not appeal to me. I favoured working on the Bray Series in Wicklow - a likely turbidite sequence. Each of the colleges offered a place, but these were never taken up because of a seven-month delay in initiating my entry into the forces to complete my National Service obligations. Eventually I was called to interview by a civilian meteorologist (a senior forecaster) at the old World War I airship hanger at Cardington in Bedfordshire. The principal topic of a very lively interchange of ideas was the possibility, and meteorological/climatic implications, of Wegenerian continental drift. My interviewer must have been suitably impressed and accepted my application; thus I spent two very useful years as a meteorologist (and as a footballer/cricketer!) in the RAF. Little wonder therefore, when I had been pleased to accept the first Departmental Prize, that I had chosen C.E.P. Brookes’ “Climate Through the Ages” (1949) and The Meteorological Office’s “Observers Handbook” (Anon. 1952).

Subsequently my career has been in science education, mostly promoting the virtues of Earth-science at home and world-wide as part of a holistic education. I worked in grammar and comprehensive schools (1957-1972); Manchester University Extramural Dept (1966-85) and Keele University Education Department (1972-97). Colleagues from many countries have visited my earth-science laboratory at Keele and stayed to take part in my classes and teachers’ courses. I have acted as chairman of the Geological Society Education Committee and as a member of Royal Society Science Education Committees. Research into, and the promotion of, investigative methods of teaching laboratory and field skills has taken me world-wide to most continents, but mostly to USA, Australia, Spain and Portugal. My organisation of the first schools’ conference on Geoscience Education at Southampton in 1993 led to the founding of the International Conference of that name. Much time 1967-2004 has been devoted to nurturing the Association of Teachers of Geology, now named the Earth Science Teachers Association. Purely geological research into the stratigraphy, sedimentology and ichnology of local rocks, notably of Permo-Triassic age, has provided the basis for many academic papers in science education, the History of Geology and in Geology itself, including the co-authorship of a university textbook on Sedimentary Structures (Collinson & Thompson 1982, 1989, Collinson, Mountney & Thompson 2006). This work has resulted in the chairmanship of several local societies and the leading of many academic field excursions over the last 50 years.

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J. KEITH TODD: HONOURS STUDENT (GEOLOGY & GEOGRAPHY) 1950-54

See Department Photograph 1.

It is half a century since the University College of North Staffordshire was founded and it is both interesting and instructive to look back to a 1950 world of ration books, travel by train, bus and bicycle, public pay-phones - watch any film of that period! In many ways the physical environment was that of a 1939 world, but it was also a world of social reconstruction, not least in the thinking which related to education. In this context, Lord Lindsay's vision of a new approach to university education was a radical departure from the pattern long established in the existing institutions.

As far as personal impressions are concerned, I think that we were aware that at UCNS we were embarking on something different, partly because the surroundings of the former Keele Estate were so obviously out of the ordinary and partly because everyone told us we were different.

The first feature that was special, appreciated I am sure by the staff, but less so at the time by the participants, was that with some 150+ students not only was the staff/student ratio extremely and uniquely high but there was a day-to-day contact with professorial and senior lecturer staff that could not happen in a larger, longer-established university. This inevitably contributed to a strong sense of community - everyone had a shared interest in making the venture a success.

The second special feature, which was obviously replicated in the other new universities that were to follow, was that we had a blank canvas for the kind of university society we wished to create. If you wanted a drama group, rugby team, climbing club, etc., we students had to start one; I recall that the rugby team had only 16 players to choose from in facing some very senior opposition, for example from other universities. Again, the sense of pioneering and commitment to success was reinforced.

Geography had always been my strongest subject at school and I saw myself moving on to university with that as my Honours' subject. I certainly had ideas of teaching but was also aware of possibilities of a career in Land Management or Town Planning. In those pre-UCCA days you applied direct to a university and I rather fancied studying at Aberystwyth or Bristol. I am sure that it was the members of staff at my school, Stafford Grammar School, that suggested UCNS and UCNS was the first to invite me to an interview. I was offered a place which I accepted and dropped the others.

There were two principal attractions, one being the possibility of linking with Geology, which I had not previously even considered, and the other was joining the concurrent course for the Diploma in Education. This option was available in lieu of one of the three Subsidiary subjects which we were required to choose and fitted well with my expectation, at that early stage, of a teaching career.

I don’t have any recollection of approaching the FY either positively or negatively. It was part of the package. Local Education Authorities had widely differing policies for funding university students. Staffordshire was, fortunately, a generous authority and paid all tuition and accommodation fees. It was also, incidentally, very generous in supporting field-exursion expenses. Perhaps because UCNS was in its parish it agreed without any debate that I recall, to fund the extra year of the Foundation course.

Without identifying particular highlights, I have a very firm impression that I felt, and still do, that the FY was “a good thing”. Without it, the basics of the school curriculum would have flowed on into a deeper study of one’s chosen subject. It would, I am sure, have been completely satisfying, but I very much doubt that I would ever have heard of Tycho Brahe or the Logical Positivists. Would I have been any the worse off? Well, how can one say? I certainly think the lectures of Prof. Bruce Williams and Denis Lees steered me towards an Economics Subsidiary, and the same can be said for Prof. John Blake and Paul Rolo and my History Subsidiary, both of which, in a vague way, have had echoes in later life. My wife Pat (née Fable, also of 1950 vintage: English/Latin, Greek, Biology and Politics) and I experienced one interesting echo in June 1993 when we had a conversation on a train in Poland with an elderly Polish Politics professor who was a professional and personal friend of Prof. Sammy Finer, who had been such a lively contributor to the Lecture Course in the Foundation Year.
The Honours' degree course. It was always very ambitious of Lord Lindsay to hope to match the quality of a degree course involving two Principal Honours' subjects and three Subsidiary subjects with the depth of the conventional Single Honours' courses in the other long-established universities. However, the employment records of those graduating from the early years of UCNS - not just the 1950 intake - suggests that the outside world saw a UCNS degree as worth having. Laurie Horobin and I, close but not precise contemporaries at UCNS, both joined the British Petroleum Company's Exploration Department as geologists and, I would like to think, held our own professionally.

Perhaps it was inevitable that such a programme would not be able to survive the social and economic pressures of the later expansion of Tertiary and Higher Education. Not even the persuasive Lord Lindsay would have been able to sustain his vision of a "New Age of Enlightenment" in a changing material world, and those of us who enjoyed its brief, full flowering should be duly appreciative.

Subsequent experiences. I followed UCNS with two years' of National Service in the Navy. I had earlier tried to get into Dartmouth Naval College but had fluffed a French translation paper, which dropped me below the selection cut-off. So it was interesting to get a second chance and I was very tempted to stay on as a career.

A successful interview with the British Petroleum Company changed my mind and set me on a course that took me from an introductory period on drilling sites in the United Kingdom (Nottingham, Wigan, and north Yorkshire) to Abu Dhabi, Malta, Libya and Greece. Most of this was well-site work but much of the time in Greece was spent in geological mapping. I was very pleased that my report on the Geology of Kefallinia was translated into Greek. It is, no doubt, still sitting in the library of Athens' University, though I am sure that the island will have since received closer academic scrutiny.

At that point, in 1962, I left BP Exploration, and played briefly on the company's behalf, with an early - and physically very large - computer before moving into Personnel. This took me into Recruitment, including visits to Keele on the "milk round". Russel Seale joined BP as a result of one of these visits. This was followed by a period in the company's Research Centre; then into BP Shipping and finally to head the department that provided all the office space and associated services for the company's Head Office.

This variety of responsibility and experience took me north to Helsinki, south to Madras, east to Calcutta and west to New York. It brought about encounters and events that I certainly could not have imagined on the muddy footpaths of UCNS back in 1950.

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HENRY WOLEDGE: HONOURS STUDENT (GEOLOGY & GEOGRAPHY) 1950-54

See Department Photograph 1.

My family hails from the Leeds-Bradford area of Yorkshire, but in the 1950s we lived in Enfield, Middlesex. I went to St Paul’s School from 1945-50. My father was the Librarian of the London School of Economics where Stanley Beaver, soon to be Professor of Geography at the University College of North Staffordshire, was the Sir Ernest Cassel Reader in Economic Geography.

For my interview in 1950, I travelled up from London by train on a blazing hot summer's day. Lord Lindsay was certainly present on this occasion but I cannot remember who else was involved. The atmosphere at the interview was very relaxed. I recall being able to introduce an element of humour when asked about my leisure interests. I was keen on music and was fortunate enough whilst at school to attend many concerts in the Albert Hall. However, I pointed out that one was able to have two hearings for the price of one - though only half a second apart - so unfortunate were the acoustics of that mighty auditorium in those days.

At that time, I had no idea what profession I would wish to follow, and this was the main reason why I opted for a university course which was as wide in scope as possible. I was pleased to be offered a place at the new college regardless of my Higher School Certificate examination results. My place was not affected by the need to receive a Local Education Authority grant or scholarship.

I greatly appreciated the wide scope of the Foundation Year, though I was more than a little taken aback that Fine Art and Music were not considered in the context of The Development of Western Civilization.

In my case, the FY did not affect my prior decision to choose Geology and Geography as my Principal Honours subjects. In this respect, and with hindsight, I realise that I was part of a minority of students who retained their initial unwritten intentions.

For my Subsidiary subjects, I chose German (Language & Literature) from the Humanities list, Economics from the Social Sciences and Physics (that version especially tailored to suit Arts students!) from the Natural Sciences.

With respect to memories of the Honours courses, it is easiest to recall the field weeks. At the Field Centre at Dorking, I remember spraining my ankle on the day before we were involved in walking 14 miles - but I somehow survived the experience. We were able to play cricket in the evenings until it was too dark to see the ball passing the bat. Another week was based on Scarborough. On the Geology trip to Snowdonia in the Easter of 1952, it was so cold and windy that I recall the snowflakes blowing up the steep slope which we were descending. It was here that Mr Barrass, on splitting the students into groups, had declared, with what seemed to be some dismay, that he appeared to have drawn the short straw: his group were the more adventurous ones. In the Bristol area a year later, I well remember that we stopped for lunch at a pub in the Mendips and that only two of the group ventured to down a second pint of scrumpy cider with their sandwiches: Sweeney Todd and one of our leaders, Dr Frank Moseley. Inevitably these were the two who slipped and damaged themselves when scrambling over steeply inclined bedding planes shortly afterwards. A last memory involves an excursion by train starting from Keele Station on the Stoke-on-Trent to Market Drayton-Wellington line (soon to be closed). Our destination was The Wrekin and the Ercall: Precambrian and Cambrian rocks, unconformably overlain by Carboniferous Limestones and basalts. These were sedimentary and igneous rocks dear to the heart of our leader for the day (Dr Alec Trendall, I’m told).

I have often wondered why, apart from so much time being spent on fossils, our Principal Geology course was so concentrated on the nature and origin of igneous and metamorphic rocks. I suspect that most geology graduates, even in the 1950s, would go into oil-related jobs where much more sedimentary and palaeoenvironmental expertise would have been more than useful. In any case, I note that many geology graduates, not just those from UCNS, have traditionally gone into non-geological lines of work such as finance or insurance.

Whilst I was in residence I derived great pleasure from being active in the Music Society and in building up the Library of Horwood Hall.

When I was holidaying with former UCNS geology graduates John Thomas and Kay B. Ellis at their cottage near

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Ffestiniog in about 1959, I remember that we commented that I was the only one of the three who was then working as a geologist (in the Planning Department of Lancashire County Council 1956-61). John, who was then employed as an assistant lecturer at UCNS, and was researching the petrology and geochemistry of the igneous and metamorphic rocks of the Tan-Y-Grisiau granite was, of course, an exception to the trend which placed a premium on "soft rock" studies. K.B. Ellis was an accountant within the Royal Doulton company.

I do not recall that the various mineral industries of this country or abroad were mentioned to us by members of the fledgling Careers Department at UCNS. In my first job in Lancashire, a knowledge of mineral processing and the qualities needed in the various materials e.g. in cement production; coal and iron ore mining; china clay, glass sand and sand/gravel extraction, would have been more than useful. Whilst our course had to be less specialised and perhaps less wide-ranging than in those in traditional universities involving Single Honours, some of these aspects seem to be odd omissions. Incidentally a life to be spent in Town and Country Planning was never mentioned in final-year careers' talks to Principal Geography students either!

I left UCNS to complete my National Service in the Royal Engineers. I had hoped to receive some training in surveying but this wish was not fulfilled. Only when finishing my obligations did I decide that wanted a career in Town and Country Planning.

Thus it was that I returned to civilian life and took the job of geologist in the Planning Department of Lancashire County Council. Through part-time study I obtained a Diploma in Town & Country Planning from Manchester University by 1961. There then followed a series of moves as Senior Planning Assistant in the North Riding of Yorkshire between 1961 and 1965; Senior Planning Assistant in the East Riding 1965-72; Assistant County Planning Officer, East Riding 1972-4; Principal Planning Officer, Research, on Humberside 1974-5 and finally as Group Leader, Implementation (later named Conservation and Countryside) 1975-87.

I took early retirement later in 1987 and am now free to cultivate interests in early music, choral singing, local history and family history. I have published an account of 18th-C migration in the journal "Local Population Studies" in 2003.

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PHILIP BRAITHWAITE HONOURS STUDENT (GEOLOGY & GEOGRAPHY) 1952-1956

See Department Photograph 4 and Figure 7.

I grew up in a working-class neighbourhood on the west side of Sheffield and attended the High Storrs Grammar School. Between the ages of 16 to 18, I focused my Advanced-Level studies for the General Certificate of Education on Geography, Art and English. My weekends were spent cycling in the Derbyshire hills and exploring the limestone caves around Castleton with friends. I loved the outdoors and already had an interest in how the landscape had been and was being formed, so I knew at an early age that I wanted to study Geology, even though it was not then offered as a sixth-form subject at High Storrs School. My Geography teacher, Mr Campbell, placed a considerable emphasis on Geomorphology and was a major influence on the direction of my interests at that time.

In 1952 I travelled to the University College of North Staffordshire for my college interview, about which I remember very little except that I was wearing a bright-green sports jacket, the memory of which makes me shudder to think of it, even today. I was grateful that I was finally accepted for entry during the college's second round of offers and was thus able, because of my family's financial circumstances, to take up a full scholarship from the Sheffield Education Committee. I soon settled into college life despite the usual feelings of homesickness during the first few months.

We students all lived on the former Keele Estate in converted Nissen-type huts (equivalent to the Quonset huts in North American parlance). These had been left behind after short-term occupation by various military forces, including those of the United States Army-Air Force, during the Second World War. The Students Union was housed in a semi-circular-shaped hut with a corrugated zinc-plated roof, but of larger dimensions than those of the student accommodation. These buildings were pretty primitive compared with the union buildings and dormitories of universities these days, but they all possessed central heating which provided a new kind of luxury for me. There were between 6 and 10 students to a hut, of mixed dates of intake to the college, with the large end room reserved for two final-year students. There was a communal kitchen and a bathroom at the other end of the hut. The occupants were purposely of mixed subject interests, organised so as to include representatives from those studying Arts-Humanities, Social Sciences and Natural Science disciplines. I roomed with Geoffrey Stanford, whose Principal, i.e Honours degree, subjects were based in the Classics. We became great friends and stayed in touch until his untimely death.

We ate our main meals in a dining hall, named the Horwood Refectory, which had been newly constructed adjacent to the forecourt of Keele Hall. However, I do remember doing some basic cooking for me and my hut mates on Sunday evenings, and this included the preparation of mushrooms which had been picked by myself from the adjacent farm fields. During most of the week, male and female students were not allowed to visit each other's rooms after a prescribed hour in the late afternoon, but afternoon tea on Sunday afternoon was an exception. Needless to say, there was a wide range of personalities, backgrounds and interests represented by the individuals in each hut. These circumstances contributed greatly to one's educational experiences during the course of long evening and weekend discussions.

During the Foundation Year, I found myself attending between 200-300 general lectures across the whole range of disciplines on offer in years 2, 3 and 4. In addition I undertook term-long tutorial classes in Geography, Economics and Physics as well as Sessional subjects in English (Language & Literature) and Geology.

I have to admit that I was a little impatient to get through the Foundation Year, as I already knew what subjects I wished to study and was ready to get on with my two Principal Honours subjects and hopefully to pass my subsidiary subjects. With hindsight, and looking back at the breadth of subjects to which I was exposed in FY, I do not regret the year spent so digressively. For people who were initially unsure of their future interests, the FY was particularly worthwhile because it provided an excellent overview of all the fields of study available to them subsequently. Dr Cope made his FY geology lectures so interesting that many students signed up for Geology Honours in the second year, but, alas, dropped out as soon as they were exposed to the more demanding aspects of subjects such as Optical Mineralogy and Crystallography. Change of Principal Subjects was occasionally possible as late as the end of the first term of the second year.
By the second year I was happy to start on my Principal subjects, Geology and Geography, as well as adding Chemistry and English (Language and Literature) as Subsidiary subjects. Because my mother thought that I should carry on the family tradition of school teaching, I signed on for the courses in Education which counted as the third required subsidiary subject and which would confer Qualified Teacher Status within the regulations of the Ministry of Education. These last-mentioned courses occupied part of the last three years 1953-6.

Geology at UCNS in those days emphasised "hard-rock" studies and, in my view, devoted minimal time to "soft rocks" except for courses in palaeontology, sedimentary petrography, and stratigraphy. Studies related to my eventual career in Petroleum Geology were considered to be "overburden" in those days! Whatever these shortcomings, the curriculum did give me an excellent grounding in geological analysis and problem-solving. Tutorials and lecture classes usually had 5-13 people in them - a big contrast to my future graduate studies in the United States, where 30 people to a class and 100 participating in "seminars" were not uncommon.

Field trips to Scotland and Wales were the highlight of each academic year for me, but with one exception. During the course of one of my teaching practices related to my Education Diploma, I picked up chicken pox prior to the fieldtrip. This resulted in me being confined to bed in the Infirmary while everyone else - lucky souls - went off to the Inner Hebrides.

Perhaps the most enjoyable and fulfilling phase of the Geology course was working on the individual field study that each of us had to complete before graduation. We were required to map and describe the geology of an area which was partly of our choosing. I picked an area of limestone terrain in the Peak Forest - Castleton area in Derbyshire, an area with which I was familiar from my high-school years. This exercise provided a searching test of one's organisational, analytical and documentation skills since all these were needed to complete the project successfully. The study required a multi-disciplinary approach involving invertebrate palaeontology, carbonate and sandstone facies analysis, igneous petrology, the origins and emplacement of lead-zinc mineralization, and an appraisal of the geomorphology in order to unravel the geological history of the area. The exercise confirmed that this was the type of geology that I most enjoyed carrying out.

I do not recall much in the way of my extra-curricular activities at UCNS, unless helping to peal the bells on Sundays at Keele Village Church might be said to count. I did not participate in any team sports as I preferred more individual activities such as cycling, hiking, tennis, sailing, etc. I did step out of character one year, however, by dressing up as a Roman soldier in the College's production of a Shakespearean play. This was performed outdoors on the lawns sweeping down from Keele Hall. I found that my type of military outfit was pretty draughty on an English evening and I pitied the life of the original soldiers who came over with Caesar!

After four years, I graduated with a Good Honours B.A. degree and an Education Diploma. After applying to a number of graduate schools, I selected one at the University of Texas in Austin, USA. They offered me a teaching assistantship to cover my expenses for a master's degree in Geology and I was able to reap the benefit of a Fulbright Grant to travel there (via the good ship Queen Elizabeth I and a transcontinental train - the Texas Eagle.)

Texas provided quite a cultural shock for me. For example, I went from attending classes in a formal gown and being addressed as "Mr Braithwaite" in UCNS to partaking in classes where the students all wore jeans and tee shirts. The professors taught classes in short-sleeved shirts, and were on a first-name basis with their graduates. Despite such differences, I found that my training at UCNS stood me in good stead. I maintained a A-grade standing throughout the work on my master's degree.

Up and till 1958 I had contemplated an academic career and so started on a Ph.D. with a Sohio Oil Company scholarship. However, by that summer I had spent several months with a noted Swiss geologist working for the Shell Company in the mountains of Wyoming. This was a major turning point in my life as it opened up a whole new world for me; that of petroleum geology. After completing the first year of my PhD, I was offered a position with Shell Canada and decided that a job doing that kind of geology was more important another graduate degree. Also by this time I had married an American instructor at UT and "I" became "we" with a daughter joining us the following year.

Thus in the summer of 1958 my family and I drove up to Edmonton, Alberta, to start a new life on the High Plains.
This time it provided a great physical shock, for we experienced our first winter with temperatures at 40 degrees below zero. However, the short mild summers and the trips up into the Rocky Mountain ranges and the local skiing compensated somewhat.

The geological and technical debate about the origins of the Devonian Reef oil/gas play was in its heyday during the five years we were in Canada. As a result, I learned a great deal about sub-surface geology and was able to interact with the Shell Research Laboratory in Houston, which was then far ahead of any other institution in its expertise and facilities. The company also sponsored me for postgraduate studies one summer at Indiana University to help better define the stromatoporoids that we were using for both dating and facies determination.

Finally, however, the long cold winters got to us and we decided to return to the southern United States where I joined the Sun Oil Company's Research Laboratory in Richardson, Texas. We arrived back in Texas to another shock. The temperature was 108 degrees F. and at that time we had no air conditioning in the car! However, we all survived, and during my fourteen years with Sun Oil Company, working on United States, Canadian, Alaskan and offshore Western European operations, I investigated a wide range of carbonate reef plays, made frontier-basin analyses, and evaluated off-shore drilling prospects. I even became involved in Oceanography and the impact of Plate Tectonic theories on marginal basins. I was able to attend industrial associate meetings at all the main marine institutes and met most of the key players in the field of Oceanography during those formative years for Plate Tectonic Theory. I continued this type of association during my nineteen years with Mobil, as I focused on the technical service, rather than the business side, of the industry. My years with Mobil exposed me to even more geological challenges, this time on a world-wide scale. I expanded my expertise into deep-water sandstone reservoirs by interpreting seismic and sequence stratigraphies. These were the most technically rewarding years of my career. Even though I held a number of management positions, I always enjoyed most the intervening years of hands-on technical work.

Looking back at how UCNS prepared me for life in such an industry, several features of my education stand out. While I still consider myself to be a specialist in carbonate rocks compared with many of my associates in the oil industry, I believe that I am more of a generalist, always applying information from several different fields in order to solve problems. UCNS' broad-based FY training and the concentration of two, rather than just one, principal subjects, contributed to this interdisciplinary approach that is pretty much standard across all oil companies today. Even though I did not wish to become a school teacher, in the end the organisational and presentational skills which I learned during the education courses at UCNS stood me in good stead when I turned to lecturing in college, giving courses in the research laboratories, explaining evaluations to management and delivering papers at technical meetings.

Having said that, I confess that I did not really enjoy the subsidiary English (Language and Literature) course at UCNS and considered myself very average with respect to these disciplines. My view changed however, when I took on the job of editing the reports of thirty research scientists. It was then that I found out that I was not that bad after all! It became readily apparent that most doctoral programmes today do not emphasis communication skills, and they lack the broad exposure to many disciplines that the UCNS' programme had encompassed.

The skills that I learned during my student fieldwork project at Castleton undoubtedly paid off throughout my career. I was able to apply them in later mapping projects in places as diverse as the mesas of West Texas, the Rocky Mountains of Alberta and the Peel Plateau of the Yukon in Canada. It is also interesting to note that my final major oil company project was the reservoir evaluation of the super-giant Tengiz field of Kazakhstan. This turned out to be of the same age and type of rocks that I had studied for my student project at Castleton!

However, getting oil out of the former Soviet Union to western markets was a major problem. Little had been documented about the availability of pipelines for exporting oil to Europe and beyond. Here my geographical and cartographic skills were called into play in developing detailed maps of all the oil and gas pipelines, as well as the railway lines, for that part of the former Soviet Union. This permitted the company to evaluate its different export opportunities.

The bottom line is that my education at UCNS prepared me well for my career and the rest of my life. I was glad that Lord Lindsay and his colleagues were willing to take a chance on me, and support my university application, way back in 1952. Today my wife and I are enjoying a happy retirement in Dallas, Texas, taking local road trips and
occasional cruises. Barbara frequently reminds me to keep my eyes on the road whenever we are driving through road cuts as I still have the habit of analyzing depositional facies and structures as we drive through. Our daughter chose not to follow either career of her parents and is now an attorney in Dallas.

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ALAN LEES: HONOURS STUDENT (GEOLOGY & BIOLOGY) 1952-6

See Department Photograph 4 and Figures 7 & 14.

As one of those who switched from Arts-Humanities subjects to Sciences, I have reason to be grateful to the founders of the UCNS system for providing a first-year experience that was so informative and a curriculum that permitted such a drastic change of direction.

I received my secondary education at the Edward Shelley High School, Walsall. This was a technical high school (rather than a grammar school) which only became a high school in 1945 and retained elements of its previous role in preparing pupils for careers in industry in the adjacent Black Country by teaching such courses as Technical Drawing, Woodwork and Metalwork. Unfortunately, in the immediate aftermath of the War, trained graduate teachers were in short supply and some subjects, notably Chemistry and modern languages, were not covered during my first five years at the school. I "caught up" to GCE 0-level in French during my first year in the sixth form but never studied Chemistry - a disadvantage that I felt later. The school slowly developed a sixth form but had little experience of preparing pupils for university. Only one had gone to university from the school before I did, and he had gone to the newly established University College of North Staffordshire. I was thus soon informed of the existence of UCNS and was attracted by the broad approach of its unique Foundation Year and dual-subject degree programme as well as the possibility of taking an Education Diploma alongside the degree studies. My own long-term interests were very uncertain at that time, but I felt that I might well go into the teaching profession. Hence I applied for entrance to UCNS.

I had two interviews. For reasons that now escape me, I first applied for entrance and was granted an interview while I was still in the first year of the sixth form. Lord Lindsay, who chaired that interview, very wisely advised me to go back to school and apply again the following year. This I did, and was then interviewed, I think, by a committee chaired by Professor Vick, then Acting-Principal. I was offered a place and entered the UCNS in October 1952 with GCE A-levels in English Literature, Economics, and Geography - a strange combination. I was awarded a Walsall Borough Major Scholarship that covered fees and a maintenance grant for the four years of the course.

I joined a community of students of a wide range of ages and from diverse backgrounds. Some, like myself, had come directly from school, but many had completed National Service and there were a number of "mature students". After the initial psychological shock, I found this social environment very stimulating, particularly in its context of an enthusiastic educational experiment on a campus in a state of constant change. I was accommodated in one of the huts (number 31, I think it was) with an eclectic set of inhabitants, including one, studying Geology, who was able to advise me later.

Lectures and tutorials in the Foundation Year soon taught me that I wished to pursue neither Economics nor English at University level. The sessional courses that I followed (Physics and French Literature) provided no scope for study as principal subjects, so I turned to an interest I had developed during my last years at school - Geology. I had come on this via Physical Geography but had never been able to follow it up, except for collecting bits of rock (not fossils) and trying to identify them. I therefore attempted to switch to Geology as one of the FY sessional subjects, but that proved to be impossible. Instead, I was advised to join the field trips run by the student Geological Society, which I did. This contact with practical geology stimulated my interest further, and Dr Cope (this was before he was given professorial status) agreed to my request to be allowed to join the Easter field trip to North Wales, organised for the P1 year. After the exhilarating experience of a week of fieldwork in North Wales I was hooked! I am not sure how much influence the FY Geology lectures themselves had on my ideas, but they certainly did nothing to discourage me. Consultation with students already in years 1 and 2 of the Geology course revealed that the reality was more demanding than the FY lectures might lead one to believe. It was nevertheless encouraging to learn that if one could withstand the "cold douche" represented by the crystallography and optical mineralogy courses, which were given early in the P1 year, then one should survive the rest.

Towards the end of FY, I told Dr Cope of my wish to study Geology as a principal subject, possibly combined with Geography. He advised against Geography and suggested that if I really wanted to be a geologist it would be better to take another science subject instead. I later came to be very grateful for this guidance. As I had no A-level qualifications in Physics, Chemistry or Mathematics, and no hope of getting them, these three subjects were non-starters. However, I had an active interest in Natural History and had studied Biology at school to GCE 0-level
standard, so a Geology/Biology combination seemed to be a possibility. Dr Cope warned that this combination carried a heavy workload (incidentally, he also confirmed the steep learning curve associated with crystallography and optical mineralogy) and suggested that I should talk to John Thomas, who was in the second year of the Geology/Biology combination, and who happened to be in an adjacent laboratory at the time. I don’t remember what John said, but whatever it was it did not discourage me - clearly the combination was workable. But there was a snag. In contrast to Geology, for which no 0- or A-level pre-requisite was demanded, entry to principal Biology required A-level. I therefore discussed the problem with Professor Gemmell, who was sympathetic but rightly wary in view of my lack of scientific background at Advanced level. He told me that if I could get up to the necessary standard and pass an entrance examination at the beginning of the P1 year, I could join the course.

Much of my first long vacation was spent trying to hoist my knowledge of Biology up to the required level. I remember that this included doing the various dissections in a pie-dish in the kitchen at home (I can still smell the formalin!). On returning to Keele in October 1953 I took the entrance examination. My marks were never disclosed, but I was admitted into the Biology course. I dropped the idea of taking an Education Diploma as the workload in prospect was daunting enough without that.

The P1 year was undoubtedly a severe test of my stamina. Alongside the two new science principal subjects I coped with Economics and German as subsidiary subjects. The following year was a little less demanding inasmuch as there was only one further subsidiary subject, Geography, to assimilate. I have to admit that I now recall very little detail of the experiences of those two years, and I cannot reliably place in chronological order those events that I do remember. I know that I enjoyed studying both of my principal subjects.

The "entente" between staff and students, which I always found to be excellent, benefited generally from having staff and students resident on the campus. It was greatly helped by participating in the P1 and P2 field courses in Geology and Biology. The Geology courses included visits to Arran and the Dorset coast, while the biological ones were held at Port Erin (for marine ecology), the Aber valley (to study mosses), and in and around the Cheshire meres and streams (freshwater ecology). The fieldwork was always instructive and enjoyable - even though it consumed a large proportion of my vacation time. The long vacation in 1955, between the P2 and P3 years, was somewhat different from previous ones: much of it was spent in geological field mapping as part of the degree requirement, and a further three weeks were taken up by participation in the Geological Society of London Tour to which I had been nominated as the UCNS representative.

Looking back on that UCNS teaching programme, I am surprised that we had any time for other activities - but we certainly made time. I was always involved in some way with the student Geological Society and in due course served as Treasurer and Chairman. We had many enjoyable day trips to the Welsh Borders and other, readily accessible areas. My other preoccupations were progressively more distant from the department. Closest was the "Horseless Carriage Club", formed by a group of geology students and gravitating around a vintage car, a Lea Francis, familiarly known as "the Leaf" (Figure 14). This vehicle had been loaned to the group by Mr T.G. Miller who had, we were told, run it into the back of a brewer’s dray in a fog and smashed the radiator. As this was of a special construction that had proved impossible to repair, the car had languished somewhere on campus. We were told that if we could get the radiator repaired we could borrow the car and run it. One of our number (Alan Halfpenny) found means of arranging for the repair, so we licensed the car and used it for transport for the remainder of the time we spent at UCNS. Many happy hours were spent tinkering with the engine. Among other activities, the Club organised a successful car rally into Derbyshire in which students and staff participated; Professor Cope joined in, driving his stately Armstrong Siddeley Sapphire.

My musical activities were completely unrelated to the Geology department and its members. I played the viola in the orchestra and occasionally made up a string quartet in Newcastle. As regards lighter music, generally organised and conducted by John Groom, I was involved as (piano) accompanist with the rehearsals and performances of two Gilbert & Sullivan operettas (Trial by Jury, and H.M.S Pinafore), and also as part of the so-called "Palm Court Orchestra" that played light music in the Union on Sunday evenings to entertain the students who had assembled there for a snack. This was during the period when the authorities had decided, as a measure of economy, to close the refectory on Sunday evenings and had issued students with packets of uncooked vegetables instead!
During the final year I decided that I wished to make my career in Geology rather than Biology, and that I was attracted by an academic career preceded by a period of research. I discussed this with Professor Cope who advised me not to stay at UCNS but to leave and gain experience elsewhere. My main interest was in petrology, but my lack of training in chemistry represented a major barrier to further progress as igneous/metamorphic petrology was becoming very chemically orientated at that time. So I turned to sedimentary petrology. During the field mapping course, my curiosity had been aroused by the problem of limestone formation, about which I knew very little. Sedimentology was probably the weakest part of the lecture course, which had included only one hour on the subject of carbonate sedimentation, so I thought that would form an interesting research topic. Mr T.G. Miller suggested that I should talk to Professor P. Allen, a sedimentologist and the Head of the Geology Department at Reading University, who was soon to visit UCNS for a geological meeting. I did so, and later travelled to Reading for interview, after which I was accepted to work on a problem concerning some Lower Carboniferous "Waulsortian" reef limestones in Ireland. As it has turned out, that subject was to keep me busy, on and off, for the next half century!

In 1956, UCNS awarded me a studentship for doctoral research - a very generous act as it was to be held at the University of Reading. This supported my research activities and helped with field expenses in Ireland until July 1959 when I received my Ph.D. I was then awarded a N.A.T.O. Research Fellowship (also based at Reading) for to study reef limestones at various stratigraphic levels in Europe and North America. The period from February to May 1960 was spent in the U.S.A. examining reef limestones in the field (in Texas, New Mexico, Kansas and Oklahoma), in studying modern marine carbonate sediments (Florida and the Bahamas), and visiting research laboratories specialising in the study of carbonate rocks in oil companies (Shell, Gulf, Mobil, Humble etc.) and universities (Cal. Tech., University of Texas, University of Miami, Princeton, etc).
On completion of the fellowship in 1961 I was fortunate to obtain a lectureship in the Geology Department at Reading. The department was expanding its staff in preparation for the opening of its new sedimentological research laboratories, in whose planning I had already been involved. I was later promoted to Senior Lecturer and became Deputy Director of the Sedimentology Research Laboratory. During the period up to 1969 my teaching responsibilities were mainly in non-clastic sedimentology, stratigraphy and field mapping. I supervised a group of research students drawn from various parts of the world: Vietnam, Pakistan, Canada and Australia, as well as a few "locals" including David Whitbread from UCNS. Their research was mainly concerned with the sedimentology of limestones in Britain and Ireland, and modern carbonate sediments in the shallow sea off the coast of Connemara, western Ireland.

My continuing interest in Waulsortian "reef" limestones - whose type locality is near the Belgian village of Waulsort - led me to establish contact with researchers at the University of Louvain, in Belgium. I was, nevertheless, surprised when, early in 1969, I was invited to become Professor of General Geology at Louvain. After considerable thought (such a move implied considerable family upheaval ... and the necessity of teaching in French, of which I was not a master!), I agreed and took up the appointment in September 1969. For the first few years I was based in the old "Institut geologique" in the Flemish city of Leuven, but the University authorities had already decided to split the old bilingual (Flemish-French) university into two separate institutions. The French-speaking part was to move out of the Flemish-speaking Leuven and establish a new university as the nucleus of a new town, Louvain-la-Neuve, in the French-speaking part of the country. I was deeply involved in planning and setting up the new Geology Department to which we moved in 1973.

My teaching responsibilities were principally in general geology, sedimentology, geological surveying and field mapping, with particular emphasis on the mapping, as that had previously been very neglected. Research interests continued as before, except that now I had Waulsortian "reefs" within an hour's drive of the laboratory. I had expected that my Belgian research students would be mainly interested in solid rock, but I soon found that there was a demand for work on modern sediments too. I therefore found myself establishing, for a second time, a research group equipped with boat, trailer, Land Rover, navigating and sampling gear, and all the attendant paraphernalia associated with work at sea in an open boat. Fortunately, having a new set of Geology laboratories allowed us to organise work-space for treating loose sediments without having to convert laboratories designed for other purposes.

I remained with the University of Louvain until retirement, and supervised my last field-mapping classes in 1998.

Nearly 40 years of experience in the markedly different systems of teaching geology in universities in Britain and Belgium have highlighted for me the qualities of the UCNS-Keele curriculum and "system" that I had experienced in the 1950s. All the systems have their merits and their faults, but I would not wish to exchange my UCNS education for that of any I have experienced since. The Keele two-subject degree, particularly in science, has been open to criticism because of the danger of superficial treatment of the subject matter. I have never felt any disadvantage due to lack of depth because at UCNS we had been taught the essential structure of the subject, how to fill in the detail when required, and where to find it. Even before the first FY lectures, we were conducted around the University Library and shown how to use it - an essential preliminary, as it soon became clear that we should be expected to use it regularly. During the Honours Geology course, we were constantly put in touch with the primary literature by reference to original papers, and we were expected to read at least a good selection of them. This was in striking contrast to the "text-book culture" I have encountered in some universities. Geology at UCNS was not superficial: it got down to essentials. I find it difficult to evaluate the effects of the FY lectures themselves, beyond the fact that they were mind-opening. In my own case, I would say that the tutorial system had a greater impact and a more lasting effect. The regular requirement to prepare a tutorial paper and to defend it orally was an excellent training and a great discipline. All in all, the education system at UCNS developed skills, unobtrusively but effectively, in both analysis and synthesis.

I am glad to say that my daughter was also able to benefit from a Keele education, 33 years after my own. She, too, entered with the intention of studying subjects in the Arts-Humanities group, and she, too, changed her mind and became a geologist.

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MARY BIANCO (née BECKER): HONOURS STUDENT (GEOLOGY & BIOLOGY) 1953-57

See Department Photograph 4 and Figure 8.

In the late 1940s I had lived in the Leominster area and had attended St Julian's High School for Girls. I applied to UCNS having gained 7 GCE O levels (including Chemistry and Physics) and Botany and Zoology at A level.

During the first year at UCNS my father paid all my expenses but for the next three years I was grateful to receive funding from the state.

During the Foundation Year, I was able to widen my horizons by attending the lecture course, which introduced me to certain subjects, such as Philosophy and History, which I had not studied before. I continued to study French (Language and Literature), which I had taken at school, as an Arts course requirement. I attended Geography for the whole year as a sessional Social Science subject. Meanwhile I maintained touch with Chemistry and Biology as my Science course requirements. I made a short acquaintance with Geology for a term.

The experience of geological and biological topics in the FY lectures, and my short acquaintance with Geology in the tutorials, did nothing to dissuade me from my original intention, which was to study Biology and Geology as my Principal subjects.

My memories of the Honours course in Geology are very clear. Many relate to the field courses (Figures 7 & 8) and my thesis assignment. The first-year trip to North Wales opened my eyes. In Anglesey the contorted structures of the Precambrian rocks, and the scenery to which they gave rise, took the breath away. Under what conditions could solid rock behave so plastically? The excursion to the area, which included the Shap Granite, was the most taxing. The lodgings were freezing cold and we all went to bed in the late afternoon/early evening with our clothes on - only to emerge when it was supper time. For my geological mapping I spent several weeks surveying the North York Moors. I stayed in a Youth Hostel for three days at a time, but then had to remove myself to a nearby hotel as the rules of the YHA did not allow a stay of more than three consecutive days.

By this time the department had changed its regulations and the choice of options had been permitted. True to the emphasis in my background ever since school, I chose to specialise in palaeontology and my tutor was Dr Tom Burnaby. I recall making scaled diagrams of many trilobites and many other groups of fossils, but to tell the truth, at that stage in my career, many of them looked to be alike!

I was very happy to live in one of the converted Nissen-type huts for the first four years - by far the best kind of place to live. But such accommodation became scarce as the university grew in size and I was not looking forward to going into the comparative isolation of the Lindsay Hall of Residence. Fortunately I was lucky enough to win a place in a draw for the last available (tenth) place in one of the huts. The latter were much friendlier places; one got to know and appreciate the ideas, aspirations and savour the generally very sociable company of so many more of one's fellow students - and of such diverse backgrounds. UCNS was so small in those days - one got to know just about all the students and, furthermore, most of the rather youthful professorial staff (average age in the mid-thirties) and even their families. One of my hut mates often acted as baby sitter in the family home of a member of staff on campus.

My extracurricular life involved a variety of diverse activities: from the rigours of the outdoor Rock Climbing Club, to the relatively sedate meetings of the Ballroom Dancing group and the more vigorous endeavours of the Country Dance Club. I even attempted to join the orchestra. Between 1953 and 1955 I played for the university netball team which involved wearing a very short, even embarrassingly short, red skirt.

Ever since its inception UCNS has acted as a marriage bureau. Many of the students became engaged and married a contemporary spirit. I was no exception; I became engaged, but decided, after leaving Keele and working in London, to go my separate way.

I had really enjoyed my time at UCNS; probably too much so, to the detriment of the class of my degree.
After working for two years for the Anti-Locust Research Centre in London, I decided to emigrate to Canada in March 1960 only to be met with a Winnipeg winter with temperatures falling to -40 degrees/C. I studied the life cycle of grasshoppers in Winnipeg for a further two years from 1961. Becoming tired of the flat lands of the Prairies and greatly missing the sight and grandeur of the mountain ranges of the Rockies and the Coast Range, I left Winnipeg in May 1962 and moved to Kamloops in British Columbia.

There I worked on wood ticks for two years before getting married to Paul Bianco, a red-headed lawyer whose parents hailed from Northern Italy. My husband had fought in the Canadian Army from Normandy to Germany and the end of the World War II.

I then became a stay-at-home mother, looking after four children. I have remained in this area of Canada ever since. I enjoy the life style of British Columbia, and I often go hiking. I now have 9 grandchildren.

I have travelled quite widely in the United States, Peru, Ecuador, the Galapagos Islands and China, as well as Europe. I am planning a trip to Antarctica later in this year (2006).

Alas my husband died two years ago, so I am now free to travel as long as I am able. I hope to be present at the next Keele reunion in 2006.

Mary Bianco, 249 Chestnut Avenue, Kamloops, British Columbia, Canada. V2B 1L4.
EDWARD DERBYSHIRE: HONOURS STUDENT (GEOGRAPHY & ENGLISH with Subsidiary Geology) 1950-54.

See Figure 9.

When I was 17 and a bit, I began to wonder whether I could possibly do well enough in my Higher School Certificate examinations to be one of the c.2% of the population that managed to obtain a university place. I knew that I was fascinated above all by two aspects of my environment - landscape and the English language. There seemed to be no-one from whom to seek advice about such matters in the venerable Alleyne's grammar school (1558) in the small town of Stone, some 7 miles north of the county town of Stafford (home of Sheridan, the renowned Restoration playwright). I cannot recall how, or from whom, I heard about the new experiment in higher education about to be realised under the title of the University College of North Staffordshire. Thus, uninformed, unguided and unworldly, I made my university applications.

The big day came. I was called for interview, a form of assessment that I had never before experienced. I remember the multiple bus journeys I had to organise in order to travel from Stone to Keele - making sure that I did not end up in Crewe on the third leg by ringing the bus bell well before the unmarked gateway to the Sneyd's Estate. It seemed a long walk from the gate to the courtyard of Keele Hall. I was overawed by the size and sturdy balance of this remarkable 19th Century restoration. I believe that the interview was in one of the two concrete, flat-roofed ex-army huts eventually to become the home of the Geology Department for a while. By this time I was nervous.

I have only mental snapshots of the interview itself, so agog was I in the presence of such eminent intellectuals: Lord Lindsay C.B.E., L.L.D, looking for all the world like the Queen's uncle (or, equally, the estate's head gardener); Registrar Jenkins DSc. who frightened me to death; Robert Rayne, the future Warden, of the soft voice but the eagle eye - apparently able to see entirely through the intentions of any teenager within 30 yards. The interview now over, and acceptance soon granted, all I needed was to secure a full maintenance grant from Staffordshire County Council. That so undependable marvellous, but with the grant system limited to three years in most county halls, I was unaware that this would leave me in dire straits in the fourth year demanded by UCNS. However, I was not deterred, mainly because I could see no other opportunity anywhere in the system of combining, in equal measure, my two greatest interests, landscape and language. I could not get excited about a problem that was three years away.

The offer letter came during a lost summer; it saw me bidding farewell to my parents, who had decided to emigrate to the United States. There was pressure upon me to follow suit, but in resisting it I made the first and most formative adult decision of my life; I have never regretted it. School was behind me, the unknown lay ahead, and time passed, helped by playing cricket for the first XI of the Cauldon Tile Company.

I was driven to UCNS on 16 October 1950 by my brother-in-law and, after being directed to Hut 3, took the momentous action of opening an account at the temporary office of one of the biggest banks. My grant cheque deposited, I felt both abandoned and free as a bird, a sensation that I suspect comes only once in a lifetime. Wandering around the area between the huts and Keele Hall, I had the advantage of knowing two other "freshers" from school: John Turner and John (Truss) Lloyd. We were followed around by a photographer from the Evening Sentinel, so I still have photographs of my new acquaintances including "Tex" Cooper, Brian Saunders, Jean Lamming, Sheila Callan* and (as I thought of her instantly) the gorgeous Barbara Horwood*. Returning to Hut 3, I soon met my fellow residents; Harry Heaney, David Jeekins, Ivan Cheetham, Philip Herman and David Thompson (the boy David).

The Lecture Course of the Foundation Year began on 19 October, with all 150 students packed into the Salvin Room in Keele Hall to hear Prof. Stanley Beaver give a comprehensive lecture on the physical background to the area around the Mediterranean Sea and the Middle East, "The Cradle of Civilisation". Later lectures were given in the "Nissen" huts that were to double as the Students' Union for a while. We were addressed by a string of Heads of Department, including Dr Wolverson Cope, at that time Reader in Geology. The breadth of the lecture course was mind-bending, and it was soon dubbed "from Plato to NATO" both on and beyond the campus. What a multitude of riches it turned out to be; school had not prepared me for such a diet and at such a sweeping pace, but I was quite quick to recognise what was happening to me. For the first time in my life, I realised that education demands and feeds on inspiration, and that there were a number of ways forward for a boy looking at landscape and listening to words.
Later I formed the view that the Foundation Year might have been presented at the end of the three degree years, rather than at the beginning, for it would have been even more stimulating to minds that had received much more training and self-education. (Indeed, by the time I was graduating I took the view that perhaps one of the great opportunities of the century had been missed by not having made some form of the FY course available commercially.)

The FY so built up my awareness and confidence that I felt no nerves on the day the annual examinations began. In fact, I was up at 5 a.m. on that wonderfully sunny morning. There was a hawthorn tree in full blossom on the Home Farm slope almost opposite the huts; I took a blossom with me into the examination room.

I cannot overemphasize the impact of the FY on my later life, career and views on science. Before it, I had had no contact with, and so had no notion of Geology, for example, for even the Geography that so attracted me at school was restricted to the subsidiary level in my HSC course because of the lack of suitably qualified teaching staff in those wartime and early post-war days.

I was inspired by the lectures of Cope and Beaver and by the formal classes in FY in 1950-51. I became better acquainted with Geology and Geography as Sessional subjects over three terms each. I signed up for term-long Tutorials in English and History and experienced a first taste of Psychology.

For the succeeding Honours Years I stayed with my likely schoolboy choices of Geography and English as the Principal subjects, partly because of my lack of confidence in my ability to take on an entirely new discipline, but I did make the decision to study Geology as a Subsidiary course for the year 1951-1952. This meant that over the years 1950-52 I was able to gain two years' exposure to geological-geomorphological ideas and ways of thinking.

That was a good decision - and fun to boot! I shall never forget the Geology practicals in the former Registry (the concrete huts on the rose garden). I was overawed by Terry Miller and Malcolm Barrass, but caught the twinkle in the eye of Frank Moseley and appreciated the quiet enthusiasm and encouraging, relaxed way in which the Head of Department engaged with even Subsidiary students. One or two episodes stick in my mind. The first took place in the Geology laboratory. One afternoon, I had been charged with studying and drawing a microscope sample of a garnetiferous mica-schist. It was so beautiful under crossed nicols that I got carried away and even took to using my coloured pencils. Then Frank Moseley, who was supervising and so walking up and down between the bent heads, quietly muttered from behind me "pretty pictures". The second was the occasional one-to-one chats that I had with Dr Cope. I well remember him adjuring me, most earnestly, not at any cost to take to heart the last chapter of Holmes' classic "Principles of Physical Geology" (1944) because the speculations therein on continental drift were misleading and without foundation. I had no complaint because, of course, I made a point of reading the chapter and was amazed by the story line.

There was plenty of variety, indoors and out. A guided visit to the nearby Tertiary Butterton dykes gave me my first training in geological observation and notebook discipline. By the middle of the Subsidiary course, I had realised that I would need more geological techniques if I were to have any chance of succeeding in understanding what I then thought of as "landscape science". Dr Cope was sympathetic, and he allowed me to join the Principal students in some geological mapping exercises, which taught me that, among much else, the beds of streams on long, very wet afternoons always seem to lead you to the best rock exposures! The afternoon that included a visit to the depths of the nearby Silverdale coalmine was one among several mind-tinglers. However, aside from an impossible track involving a triple Honours degree, I could go no further - at least for the foreseeable future. Mind you, I was surrounded by student hutmates (Figure 9) who talked Honours Geology much of the time - notably Phil Herman, John Thomas and David Thompson. I like to think that I picked up both information and enthusiasm from these unscripted chats, and edged closer to Geology by proxy.

Incidentally, the first dissertation I ever typed in my life (out of friendship and kindness!) was one that was required at the end of the first year in Principal Geology. It was not mine, of course, but one delivered in dictation mode by a 1953-7 student named Don Tarling. He is now Emeritus Professor Donald Tarling, who took his Keele honours degree in Geology and Geography with Subsidiary Physics, and was involved as a postgraduate at Newcastle University with some of the pioneers of rock magnetism when that sub-discipline was beginning to make continental drift less outlandish and increasingly acceptable. Beyond doubt, these events, taken as a whole, provided the first major turning point of my life.
My social circle was enlarged progressively by a fair range of extramural activity, often involving team games. I played in the first-ever 1st XI soccer match (lost 3-2 against Birmingham University 2nd XI), in the company of ten members with some kind of allegiance to Geology: John Thomas (captain), Ushman Shah Afridi (of the Pakistani aristocracy but known to all as "Alf"), David Thompson, Bryan Saunders, John Gregory, Brian Stokes, Brian Lawton and Len Woodford. (Eight years later John "Tommo" was to become the godfather of my eldest son). This first fixture was necessarily an away match enforced by the lack of any playing fields on the campus in those early days. It was said that no fewer than 10 natural springs were developed at times on the interbedded Keele Sandstones and Mudstones (capped by thin boulder clay) of the heathland area, which was destined to become the college's games fields.

By the spring term of the FY (1951), I had successfully founded the university table-tennis team consisting of Little, Scourfield, Thompson, Wilson and Woodford. By the next season, the first team had changed, and I was joined by two useful left-handers: Witherspoon and Pleavin. In my home, at least, all these names live forever, with my two geological friends David Thompson and John Thomas having a very special place. Thus my activities were dictated early on by my enjoyment of team games, so much so that I was jokingly (though kindly, I have to suppose) referred to as "All Balls". Soon afterwards I helped to found the women's table-tennis team.

My love of poetry and drama was covert for a while, but it emerged in the end, through the quite remarkable (for such a small college) Dramatic Society and the annual Students' Union stage reviews. I tried, but never really (as a scouser) had the necessary voice projection to get parts on the boards themselves, so I did what I could in the way of helping behind the scenes. Preparation for "A Midsummer Night's Dream", presented by the lake at the bottom of the Keele Hall lawns, involved constructing a bridge across the lake, using builder's scaffolding for the purpose of entry and escape for the actors, all neatly hidden by the bushes around the lake shore. I did much rowing of the support boat.

Attendance at the Geographical Association (=Society), established very early within the FY, was almost mandatory. We saw familiar textbook names "in the flesh". I was elected Student President and became one of the speakers after visiting my parents overseas and becoming the only British undergraduate at the XVIIth International Geographical Congress in Washington D.C., in August 1952; that was my first taste of public speaking.

Vacations were generally too long for my taste, because I felt so much at home as a UCNS student on the Keele estate. Of course, the highlights of these times were the field courses, required annually by the three field sciences: Geology, Geography and Biology. The first one for me, in Physical Geography, was on the North Downs and in the Mole, valley which was rigorously led by Dr Ted Yates. It opened my eyes further to the relationship between Geology and landscape while, at the same time, introducing me to the importance of plant life and soil processes. Prior to this, only the FY lectures had given me any inkling of the science of Biology, which had not been part of the curriculum at school. I shortened the vacations by taking on part-time jobs and discovered a talent for bar-keeping.

I had opted to take my two years of National Service after my degree course - an innocent but crucial decision, which worked very well. Four years at UCNS, including a long visit to the USA, as well as coping successfully with the Diploma in Education course, left me ready for anything - but National Service had to be experienced to be believed. The first few days of 5.30 a.m. reveille with the South Staffordshire Regiment stripped me bare of family, friends and faith, let alone the memory of the recent experience at UCNS. For some reason, my particular intake of innocents was required not only to undertake the standard six-weeks-long "square-bashing", but a further four of commando-style exercises. I had been playing vigorous sport since I was aged eight, but I did not reach my peak of fitness until the end of those 10 weeks; come to think of it, I have never experienced it since, either. I may have been a 1954 graduate of UCNS, but I graduated from childhood to adulthood on the square in Wellington Barracks, near Lichfield, in the spring of 1955. Both experiences were invaluable to my broader education, and brought my feet much closer to the ground.

Then it was off for mental gymnastics for 12 weeks, to the Royal Army Educational Corps training camp in the lovely parklands in Beaconsfield, where I learned the rudiments of being an Army teacher. From there, it was the "plum posting" to Fontainebleau, with its magical chateau, the location of the Supreme Headquarters, Allied Powers in Europe (SHAPE). I taught all, from new recruits to elderly Sergeant-Majors, the mysteries of plain speech and writing, and ran courses on Higher School Certificate Geography. National Service was my turning point number
I was released by the Army a couple of months early, which allowed me to accept a postgraduate bursary at McGill University in Montreal. In between the Army and McGill, I married Maryon Lloyd (English & Geography at UCNS 1951-1955 and still my soulmate), who kept me alive in my second thesis-writing and unfunded year by working at the Arctic Institute of North America. The bursary involved me in training to be a Canadian Meteorological Service weatherman, preparatory to a year in the meteorological station in Schefferville in central Labrador, close to Knob Lake, where the McGill Subarctic Research Laboratory was sited. (Incidentally the minimum winter temperature recorded by me was minus 47.5 degrees F!) My shift work as a weather observer paid for my keep and released me for four months of summer fieldwork in the vast, daunting, barren, mosquito-ridden tundra. The signs of recent glaciation were everywhere apparent in a landscape, which had emerged barely 6000 years ago. This fieldwork formed the basis of my M.Sc. thesis, and may have been instrumental in bringing me back to UCNS in 1958, after two years away, to take up the offer of the most junior of academic posts (a Demonstratorship in Geography).

Back at UCNS, we soon moved into Gateside Cottage - long since demolished - halfway between the Newcastle and Keele drive entrances of the Sneyd's former estate (rent 2s/6d per week). Our first son Edmund was born there in 1959. A year later, he learned to walk on the ship that took us to Sydney and my first Lectureship: at the University College of New South Wales at Newcastle, Australia. I stayed only two years, having been recruited under a false premise and not being employed to teach Physical Geography - much less Geomorphology. Potentially jobless, I fell on my feet by becoming the first staff member to arrive in the newly established Department of Geography in the new Monash University in Melbourne. I was in charge of geomorphology and climatology. I discovered Tasmania and spent every vacation there in that geological, geomorphological and botanical wonderland. These were four very productive years: as a Senior Lecturer gaining a Monash PhD and granted a year’s sabbatical leave; starting research on the cordilleras above the Meseta of Castille in Spain, and including a brief return to Keele. Thus our second son Edward was born while I was at a conference in Durham, from whence Geoffrey Boultan, at that time with the British Geological Survey (but a Potteries lad and formerly a Demonstrator in Geology 1965-6 at the recently named Keele University), drove me back to Keele.

I returned from Australia in response to a telegram from Keele with an offer, of only a Lectureship, but nevertheless irresistible. The next 18 years were some of the happiest; free rein to teach geomorphology, climatology and biogeography, and able to carry the heaviest teaching load without undue stress. My research was little affected as I built upon those scientific and technical needs that had become evident in the last stages of my Tasmanian work, as well as geological investigations undertaken in Antarctica with two North American colleagues. The interpretation of many young landforms cannot be complete without an understanding of the properties of the constituent sediments, especially their structures. I was first able to make limited use of the transmission electron microscope in the adjacent Department of Physics, with the luxury of help from a very good technician. I argued for a scanning electron microscope to be owned by potential user departments: Physics, Geology, Geography and Biology, a case that was eventually won. I could now look at the size, shape, surfaces and accretions of individual silt grains, these being valuable indicators of the recent history of geological processes. Upgrading of the microscope made element analysis possible, to which was added x-ray diffraction investigation of the finest (clay-sized) material. The scanner was lodged in Geology, so I became a frequent visitor. I was more than tolerated there by staff old and new, some of whom I still regard as friends: Colin Exley, Peter Floyd and John Collinson. The group included Eddie Francis (ex-BGS), a stimulating and encouraging Quaternary geologist with whom I had increasing amounts in common. Eddie and John were the two who willingly crossed the road to Geography to talk about our mutual interests to my Final-Year Honours Option class in Quaternary Science. It was in the middle of this period when my early UCNS training began to emerge in practical ways.

I had never forgotten the lesson of the FY concerning the indivisibility of science, and my conviction only increased with time. I was keenly aware that the joint efforts of the three field disciplines (Geology, Geography and Biology) could, with comparatively little effort, provide an outstanding training not only in the field sciences but in the societal relevance of that science in solving real-life problems affecting us all. All that was needed was a new look at the structure of selected courses and how these could be integrated to run alongside conventional ones. The prime ingredient required was open mindedness; and there was the rub. My approaches received a polite but very cool hearing in Biology. Professor Cope was by no means against, but without Biology such a novel venture in convergent science was out of the question. So I failed in my first attempt to maximise the impact and effectiveness of these three major disciplines and, inevitably, we were soon overtaken by the University of East Anglia. I still preach that same doctrine, and it is with a wry smile that I see how fashionable it has become, as disciplines now
talk to each other (but often, alas, on pain of losing cash, students or their very existence). To be sure, Lord Lindsay will be laughing merrily at all this.

Opportunities further modified my research interests. An invitation from Geoffrey Boulton, by 1970 of the School of Environmental Sciences, UEA, to join a six-week expedition to the margins of Iceland’s small but dynamic ice sheet was a further turn of the screw. Increasingly, I was called upon by civil engineering companies to provide consultancy advice on the properties of glacial deposits in a variety of sites. It was fascinating, remunerative, and imposed a very steep learning curve, as I accessed the know-how of rock and soil rock mechanics on the job from commercial engineers. Sites included the Brenig Reservoir, North Wales, and the Kielder Reservoir on the North Tyne River. I began long-term work with the Building Research Establishment, Watford, a link that led to consultancies on foundation soils on the east coast of England and the oil-gas platforms on the North Sea bed. Work in applied sedimentology was hugely stimulating and moderately well paid. The latter led to conflict with my Vice-Chancellor. I lost the financial battle, but refused to surrender my right to advance my education by accepting consultancies. I was appointed Secretary and then Chairman of the British Geomorphological Research Group and helped to co-found its house journal.

In 1977 I was moved sideways again (turning point number three) by an unexpected event - an invitation to join a five-person Royal Society delegation of geomorphologists to the Chinese Academy of Sciences. The 3-week scientific tour of China was a total revelation and re-shaped my career. The "gang-of-four" had just been tumbled and our Chinese hosts were thinking on their feet as the tour of scientific centres began: Beijing, Xi'an, Wuhan, Chenzhou, Guilin, Guangzhou and then Hong Kong. My opposite number was the Director of the Institute of Glaciology of the Academy, Professor Shi Yafeng. As Lanzhou, 1200 km to the west, was still a "closed city" at that time, he came to me in Beijing! The magnitude of that particular contact was huge and far-reaching for both me and my family. It led to an invitation to spend 6 months at the Institute in 1980. I lectured in the Institute and the University, to which geoscientists were flown in to attend my 3-month-long course in Glacial Geomorphology and Sedimentology. The ages of my distinguished "students" ranged from 25 to over 60; I should have been overawed had I had time to think, but such a privilege was not on offer! My time in China came to an end as the International Karakoram Project 1980 began its work in the upper Hunza valley of Pakistan, quite close to the Chinese border. While my family flew home, I made my way to Islamabad to join the UK-China-Pakistan expedition. All these events comprised a rich set of turning points: number four.

In retrospect, it is difficult to understand why I left Keele for the last time in 1985 where I was now Professor of Geomorphology, but I accepted the post of Chair and Head of Geography at the University of Leicester. The University at that time was in particular difficulties and there were departmental mountains to climb. Despite these, there were some successes, e.g. persuading the European Union to provide 8-years' funding of soil-mechanical research on the huge, largely undocumented, landslides of western China. These annual events threaten the lives and livelihoods of some of China’s poorest people in the dry, seismically active, west. With unconsolidated loess reaching 200-500m thick, here was a geological problem with huge societal significance. Joined in 1987-1992 by colleagues from several EU countries, together with the staff of the Geological Hazards Institute of Gansu Academy of Sciences, Lanzhou, two or three times a year, it was difficult not to be overwhelmed by the richness of the challenge. Very good relations with the Department of Geology at Leicester included jointly supervised research on Karakoram glacial sediments, and the loess cover of part of Tibet.

At the Congress in Beijing of the International Union for Quaternary Research (INQUA), I was elected its Secretary-General for 1991-1995. The University took no interest either in the work load or any status that came with the position. In a remarkable convergence of events, a way forward emerged, from an unlikely quarter - politics. Margaret Thatcher & Co. decided that many problems associated with British universities would be solved if early retirement were offered to all over the age of 55. The terms on offer were more than good - so manifest that they were rapidly constrained. I hardly hesitated; retirement at 58, with no financial worries, was a huge release. I now had the freedom to run my own life; to teach if I wished and/or to take on full-time research.

Happily I was immediately "picked up" by Professor Jim Rose, Director of Quaternary Research, of the Department of Geography, Royal Holloway, University of London; this was a no-strings-attached provision, the stimulus of working with excellent earth scientists and a very good Department of Geology in the building. I was soon contributing to the M.Sc. in Quaternary Science and running a course in Sedimentology with Lewis Owen - a decade of work beyond doubt the happiest and most rewarding teaching of my life. To share one's enthusiasm with well informed, bright, mature and keen postgraduates is a singular privilege.
Soon afterwards I was co-opted on to the Scientific Board of the International Geological Correlation Programme (IGCP), a joint venture of UNESCO and the International Union of Geological Sciences, and then elevated to its Chair for 5 years. This was turning point number five, not because it placed me in a position of influence in one of only four programmes in the Science Sector of UNESCO, but because the IGCP helps geologists so much worldwide on such a trifling amount of funding and, especially, because the 16 geologists from developing/developed nations making up the Board were, year after year, a most lively, critical and humane group of people to chair.

Wearing my IGCP hat, I have been a member since the 1980s of the Royal Society’s Earth Resources Committee (the United Kingdom Committee of IGCP). My experience of IGCP probably led to an invitation to serve on the External Relations Committee of the Geological Society of London, a body that took over the role of UK committee for the IGCP. In between this and in my last year of chairing the IGCP, I was asked by the IUGS to chair its Committee for Research Directions, a small group that was charged with working as a think-tank with respect to international geoscience research initiatives. Long involvement with UNESCO led to interesting work that took me to four of UNESCO’s biennial General Conferences and work with UK’s Permanent Delegation to UNESCO.

Amongst several other international duties, came the chairmanship, in 2001, of the Science Programme Committee of the proposed United Nations International Year of Planet Earth 2008. This proved to be a big task, the range of skills expected being well beyond that of chairing committees; the learning curve in diplomacy and politics is as steep as ever. The inheritance of the FY at UCNS may be of modest help. My academic colleagues and I must have learned something because, after we had lobbied National delegations at the UN in New York and had gone over the programme and the UK’s potential input at the Foreign and Commonwealth Office, we were finally rewarded on 22 December 2005 when the UN General Assembly made its decision. Thus, 2008 will be the pivotal year around which a triennium of global geological research initiatives and a huge outreach programme will run from 2007 to 2009. Now the work really starts.

Editors’ note. The presence of the asterisks * relates to the fact that these two surnames do not appear in the records of the Alumni Office or the list of Graduates cited in the University Calendars in the 1960s. The surnames do, however, appear in the author’s 1950s handwriting on the back of Evening Sentinel photographs of 1950 in a scrapbook recently handed in to the Alumni Office by the writer. Barbara Horwood was the grand daughter of Alderman Thomas Horwood. It is possible, of course, that these students were part of the group of 10-15 who did not graduate or changed their surname on marriage. John Easom states that early records are sometimes very sketchy.

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ACKNOWLEDGEMENTS

The editors offer their deepest thanks to all the contributors for their hard work, breezy enthusiasm and forbearance over many months. In addition, they acknowledge the assistance of the following persons: Dr Angela Drakakis-Smith and Dr Bruce Richardson of Churnet Valley Books for permission to copy the chapter relating to the memories of Professor Wolverson Cope; Mrs Kathleen Blackburn, keeper of records at the University for access to students’ record cards; Tim Denning of the Education Department for his extensive help with computer problems; Malcolm Wright, Chief Technician in Earth Sciences and Geography, for copying of the Department Photographs which line the lower corridor of the Department; Mrs Doreen Thompson for extensive secretarial help over many months; Bernadette Callan, formerly of the Earth Science Education Unit in the Education Department for composing the Table and solving intractable computer problems; John Kolbert and the Information Service for allowing the reproduction of photographs and maps; Professor Chris King, Head of Education and the Science Education group at the University, for prolonged and extensive use of photocopying facilities; John Easom of the Alumni Office for his general support of the project; Hannah Crush of the same Office for retrieving details of former students; Professor John Winchester for his wise counsel at an early stage in the project; lastly the chairmen and members North Staffordshire Group of the Geologists’ Association of London for their interest over the last 56 years in the fortunes of the Geology Department of the University College of North Staffordshire and its successors in the University of Keele, and especially their willingness to support this present venture. Finally, credit is due to Mike Fereday, currently Chairman of the North Staffordshire Group of the Geologists’ Association, and John Winchester for assisting in proof-reading and production of this booklet.
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