16 ADMINISTRATION - GEOLOGICAL SURVEY 1975 - 1980

Here are a few diary dates:

1975
Feb 27 to 1 March. Visiting Norway (Stavanger) and Denmark (Copenhagen) re co-operation in North Sea mapping.
April 2. Visit of delegation from Chinese Oceanological Society.
July 21. Paper Board for my replacement as District Geologist CSU 2.
July 22 to August 14. Leave. Visit to Jard and return via Cherbourg
October 27. KC Dunham lectures the Edinburgh Royal Society, arriving very late.
December 12. Dinner with Edinburgh Sub-Aqua club.
December 19. Attend KC Dunham retiral ceremony.
1976
January 23. First occupation of Murchison House – moved into completed Level 5.
March15 to 28. Visit to Vancouver with Lucette.
May 21. Full occupation of Murchison House. Moved down to Level 3.
July 9. Nicole graduation.
August 12 to 16 September. Visit to Australia with Lucette.
October 12 to 15. Visit with Highland and Islands Unit to Barra and Benbecula.
1977
March 15. Formal hand over of Murchison House by builders.
June 14. Official opening of Murchison House.
August 20. Nicole wedding.
October 17 to 18. Diving in Strangford Loch, North Ireland.
December 2. Funeral of William Bullerwell.
1978
February 2. Gave lecture to Edinburgh Masons.
July 10 to 14. Week with Highlands and Islands Unit in Highlands.
July 15 to 17. Visit Duffs in Ardnamurchan.
August 15 to September 1. Leave.
September 16. Robert David went to Iran.
September 25 to 30. Visit to potential sites for radioactive waste disposal.
October 30. Herman Bondi to lunch in Merchison House.
December 24 to 26. Holiday at Crieff Hydro with Grandpa.
1979
March 10. Handed Grandpa over to Richard and Elsie at Scotch Corner.
March 15 to April 13. Holiday in Grand Bahama and Turtle Cay.
June 17 to 23. Sail training cruise out of Ullapool with Lucette.
August 2 to 6. Diving with CSU 2 at Loch Madee, Uig.
August 17 to 20. Visit Duffs in Ardnamurchan.
September 3 to 7. BA meeting in Edinburgh, including reception at Murchison House on September 4.
November 2 to 4. Visit Duffs in Ardnamurchan.
December 23 to January 2. Holiday in Paris and chez Monette in Lyon.
1980
March 27 to 12 April. Visit to Exeter.
June 10. Reception of large Chinese delegation at 3 Bonaly Crescent.
August 14. Retired.
October 28. Moved from Edinburgh to Whirlow with help of Christopher..

November 18. Brought Grandpa to Whirlow.

Early in 1975 Jim Robbie decided to retire at the age of about 63. In those days Assistant Directors of IGS had the option to continue in post up to around 65 if they so wished, although lower ranks were firmly pensioned off at 60. The Robbie retirement was preceded by an appointments board to select his replacement. The obvious person would have been John Wright, a strong phlegmatic character who had spent his formative years in the Highland Unit, then moved south on account of his daughter's health. He was very much a professional highland geologist and ludicrously placed as District Geologist in charge of CSU 1. However, he did not apply for the Robbie post. That meant he would be a well in line for the AD Offshore post, possibly to be vacated by William Bullerwell on moving to a new Deputy Director post a few months later.

There were, though, two other strong characters in contention for the Robbie post. One was Scott Johnstone, a dour Scot through and through, DG of the Highland Unit, the other was Harry Wilson, DG Northern Ireland Unit - the Wilson who had beaten me into second place in our particular batch of appointees to GSGB in 1946. Either would have made excellent ADs Scotland, as indeed would have John Wright.

I had never particularly planned my career on the basis of aiming at a senior post. Rather, insofar as there was choice, I had followed the course which most appealed to me at particular points - hence the move to Scotland and then into offshore work. I could, for example, have applied some years earlier for the post of AD London, which might with luck have led to the Director post, but I preferred to remain in the offshore field.

By 1975, however, I was beginning to think it would be not unreasonable to settle down a bit. I had had a good stint offshore, and the lengthy absences from home were a problem, also several of the people with whom I had most enjoyed working had departed for one reason or another. I had long since parted company with the BSAC. There was a distinct risk that if somebody else got the Edinburgh AD job either I would be spending the remainder of my IGS service under John Wright or he under me - neither prospect appealed in the slightest.

On the positive side, I could see that bringing together some 200 Scotland-based IGS staff from their existing six plus locations into the disaster-area which was the new office at Merchison House would be a challenging job, albeit primarily of an administrative nature. Senior scientists are apt to end up as administrators. CSU 2 had offices at Granton and a store near Dalkeith, MGU had offices at Liberton, the land units were based at 25 Grange Terrace and the Global Seismology Unit in an old house not far round the corner. The Geomagnetism Unit was to move to Merchison House from Hartland Point in Devon, and several specialist groups had detachments waiting to move up to Scotland from London.

The command structure of IGS at this time was a bit odd and not too well thought out. AD Scotland was line manager only of the three Scottish land units plus the Northern Ireland Unit, plus the direct support services, but he was also house manager in respect of all other IGS units located in Scotland, and represented IGS in Scotland

generally. Because of the technicalities involved there was a clear case for a matrix management structure, but at the time it existed only in the vaguest of forms.

Anyhow. I applied for the post. I nearly got dragged away from a very enjoyable Malta holiday with Lucette to attend the appointments board, but in the end this was held back to await my return, and Harry Wilson, Scott Johnstone and I attended together on 24 March. I was in good form and impressed myself with my performance. On account of my offshore experiences and contacts, both national and international, I had developed substantially wider horizons than those of a straightforward field geologist, and I was able to deal effectively with all the queries put to me. Scott Johnstone, when told that Merchison House would have a substantial marine contingent and asked what he would do if there were problems in this area, replied that he would refer them to me.

In the evening the three of us went for dinner together to an East European restaurant in South Kensington, and having consumed rather more than our fair ration of wine, returning to our hotel in a dazzling and agreeable whirl of coloured lights mainly created by the traffic along Brompton Road. We resolved that whoever was offered the post would pay a dinner for the other two. This pledge has yet to be honoured.

Next day Kingsley Dunham phoned to offer the post to me, and of course having applied I had no real option but to accept. About six months later the AD Offshore post became available and John Wright as the only visible candidate was appointed without a board. It was widely felt, including I am quite certain by Dunham, that John Wright and I should have been in each other's posts, but that was the way the cookie elected to crumble. Basically it came about because of the unwillingness of John Wright, or perhaps his family, to move north again.

Merchison House

I very rapidly discovered that the Merchison House enterprise was a most appalling saga of incompetence in almost every respect. Building on a restricted and not very suitable site in the corner of the university science campus had started four years earlier, in 1971, and completion was already about two years overdue. The basic specification had been compiled by Jim Robbie, the plan and supervision had been by the government's Property Services Agency (PSA), the builder was a private contractor from Aberdeen. NERC was supposed to provide a technical and financial overview from London, but on account of staff shortage had not got round to doing so – they had left it to PSA.

The accommodation required included half a dozen specialist laboratories, large storage spaces, two workshops, a library, draftsman and photographer suites, computer and common rooms and a large number of scientific staff rooms. The small size of the site dictated an H-plan, and planning authority limited the height to five levels. The requirement could fairly easily have been fitted into a standard office building, indeed this would have led to better long term flexibility in a rapidly changing world, but it had been decided to opt for something very specifically tailored to individual Unit needs as they were perceived at the time. It was even tailored to the extent that the space for each Unit had the ratio of its middle-rank/lower-rank staff rooms (they were of different sizes) allocated at the levels they were in about 1970. I

had a problem in making the case that this was inappropriate for the Continental Shelf Unit, which being new had a large proportion of junior staff due to reach middle-ranking with the passing of the years. Fortunately my point in this respect was taken, but being located on the other side of the city at the time, in our cosy little Granton office, I was not much involved at the planning stage and, to be honest, I had other more interesting fish to fry.

The first error of PSA Scotland was to give full responsibility for the design of a building, which turned out to be far more complex than any they had previously tackled, to a recently joined architect for whom this was his first commission. I had known Alan Pendreigh for a number of years as a BSAC diver, and he had actually come to me for advice on his undergraduate design project, which was for an underwater observatory amongst the harbour rocks of Dunbar. I knew, which his boss later admitted he did not know, that Alan had entered architectural training as a mature student, and when he started in PSA he was thought to have the professional experience appropriate to his mature appearance. He did not. Kingsley Dunham, given to Churchillian gestures, had told him to produce an adventurous building, and had then departed to London. Alan - still not much more than a student - took the words at their face value.

He started by innovatively asking the field staff what sort of work they would be doing in the building and in particular what sort of lighting conditions they would require. The field staff scratched their heads. This was a new world; geological field staff are used to putting up with any old conditions. Then a thinker amongst them said they sometimes examined fine grained sediment samples, which could most easily be done with good natural light and minimum air movement. Very true. Perhaps one of the 200 staff due to occupy the building might spend a couple of days per year on this activity, but Alan latched onto this need as a primary parameter. On this specific basis he set out to design a strikingly original building with large projecting areas of glass, the ventilation being provided by horizontal glass slats underneath the projections so that draughts would be cunningly minimised as requested. The windows were not only geometrically complex, they were about the most unsuitable windows designable for a site exposed to every blast of Scottish air and every ray of Scottish sun. Many of the rooms were uninhabitably cold in winter and uninhabitably hot in summer. The glass to glass slats below them proved to be virtually unclosable however Arctic the draughts.

Another requirement of the land staff was two environmentally controlled storage areas for tall racks of fossil and rock samples. Alan accommodated these in two large windowless silos, one on each side of the elevated entrance area. These silos contained high unused spaces above the racks, earmarked as suitable for possible future mezzanine floors, and Jim Robbie also noticed during the early construction period that they contained substantial usable but blanked off areas beneath them. Due to increasing and changing requirements during the construction period, the plans were in the event altered as building proceeded to accommodate both of these potentials. The need for fire exits from the new basement areas was, however, overlooked, so that once the building was occupied and this defect was noticed these had, with huge difficulty and much dust, to be cut through the massive reinforced concrete foundations.

When Kingsley Dunham was shown the plans late in the design phase he expressed concern that the entrance faced towards the university campus and the rear of the building towards West Mains Road. Another Churchillian gesture was appropriate. He wanted the entrance moved to the other side. Alan Pendreigh did exactly as requested. He took the plans and turned the whole building round with the minimum of alterations. Since the ground sloped significantly downwards from West Mains Road to the campus one result was to convert the previously elevated and imposing entrance into a semi-subterranean vault below road level. It will remain so for the life of the building, and I remain permanently ashamed - on behalf of BGS - of the mangled appearance of the entrance. This rearrangement also turned the bulk of the glazed area to the south, increasing its exposure to both the sun and to the prevailing south west gales.

When the building was tottering towards completion, enter new broom RA Eden. Discovery No1 of RAE. The building was to be as open-access as any university building, with no security arrangements whatever, despite contemporary IRA activities and the Northern Ireland governmental connections of IGS. Discovery No 2. The librarian was climbing up the wall concerning the design of the already completed library. Alan Pendreigh had conceived the library as having a quasi-monastic appearance, with massive circular brick columns, a spiral staircase encased in brick leading up to a balcony, and a matching but smaller brick book-lift. The design was his pride and joy. The librarian complained that the clutter of brick columns concealed half the library from supervision, that they were a major waste of space, and that the spiral staircase was both unusable and dangerous.

New broom RA Eden went to the PSA architect Mr Johnson, boss of Alan Pendreigh (who had by now been found out and - too late - ignominiously ejected from the project) to enquire if funds were available to do anything about these two problems at this late stage. The answer was that there was believed to be some slack in the funding. Security fences and lockable gates were added in. The whole interior of the library was demolished amid great clouds of brick dust, and re-designed with a slim stainless steel plus wood motif. The accounts of PSA later turned out to be not only shambolic (partly due to absence of any facility for coping with the rapid inflation which was happening at the time) but 6 months in arrears, and this exercise caused an already massive overspend to become even more massive. I believe it ended by totalling some two million pounds overspend, which was a not insignificant sum in the 1970s. When NERC finally came alive and started taking an interest, I had to do some quite nifty explaining, which I did to my own satisfaction and life proceeded. At least, though, I congratulate myself that BGS ended with a reasonably workable building.

There were, however, numerous other problems. The PSA Clerk of Works reputedly supervising the site was a pleasant but ineffective, plump, red faced gentleman clearly very near to retirement, who sat there with little idea of what the builders were doing under his nose. The flashing on the flat roof parapets was put in the wrong way round, so that it shot water straight into the building instead of away from it, causing two-inch deep floods on the upper floor - the parapets had to be demolished and rebuilt; ducting between all rooms was lined with flammable polystyrene - it had to be cut out room by room; the lead flashing above most of the windows was insecure

and was physically ripped out during the first gale - the entire building had to be scaffolded to replace them.

There turned out to be such a tangle of pipes running above all the corridors that corridor ceilings had to be inserted a foot lower than planned; when the building was complete and occupied somebody in PSA recalculated the floor loading design and found it wanting, resulting in a need to insert a number of extra support pillars into the working areas below; all the electric power points were inserted with a haphazard lack of distinction between the neutral and live poles.

At the time of my appointment on 1 April 1975 work was at a virtual standstill due to cash flow problems of the builders; the initial contractor had already gone bankrupt and been replaced by another. With the support of PSA, the head man of which had a guilty conscience about their performance, we resolved to clarify the builders' minds by setting dates to move in piecemeal as each section of the building was completed.

The first section completed was in fact the north wing of Level 5, due to be occupied by the Global Seismology Unit, but in order to be where the action was I took it upon myself to start by temporarily locating the AD's Office and the Administration Unit in this wing. We moved in on 23rd January 1976, clambering over the builder's debris on lower levels. I occupied the room designated for the Chief Seismologist and Elsie, my secretary, that of his PA.

Once we had a foot in the door we were able to morally pressurise those who needed to be pressurised, and gradually the tide of completion moved down the building. When it reached Level 3 I transferred from Level 5 to the permanent AD rooms on Level 3. I fear that, with the connivance of PSA, I had caused a demolition job to be carried out there also. The secretary to the AD was supposed to be accommodated in a 150ft^2 area cut into the corner of the AD's room, turning it into an awkward L-shape. I caused the secretary's room to be relocated into a small office on the other side of the corridor and the AD's room to be made rectangular. The demolition involved not only removing two walls but also re-hanging the ceiling and redoing the electrics, but we ended with a rather magnificent 600ft^2 room with a good view and very convenient for top meeting purposes.

We finally obtained possession of the whole building on 21st May 1976, although the formal handover was not until 15th March 1977.

Once in the building there was the task of welding the dozen disparate units each with their separate traditions into something of the nature of a whole. One of the methods was regular briefings of senior staff, another was Monday morning coffee gatherings of unit leaders.

My principal task for several years, though, was correction of the numerous problems with the building. The windows, the leaking roof and the flammable insulation were major preoccupations. Fortunately hikes in petroleum prices caused funds to become available for fuel saving measures, including secondary glazing, so we had a massive secondary glazing programme. The secondary glazing also cut off the glass to glass slats, although at the expense of cutting off the whole projecting window area in each of the many rooms – a huge waste of space.

The large areas of south facing glass proved too tempting to some of the gardening members of the staff, particularly to those in the upper level of the building – members of the Global Seismology and Geomagnetism Units. Not content with the occasional pot plant on their window sills, they took to bringing in tomatoes by the dozen, flourishing exceedingly in large troughs. The upper windows of the building came to give the impression of bursting with green life. In the interests of propriety I felt I had to edict no more than three plants per room.

The occupation of a major new building is a key episode in the history of an organisation, usually considered worthy of a ceremony plus a celebration of some sort. The long drawn out process of occupying Murchison House made it difficult to fix on a suitable date, but by early 1977 there was a general feeling that something should be done before it became too late. Thoughts, not mine, turned to royalty, although it was realised that royalty requires lengthy notice. Prince Charles was considered the most suitable, in fact the only suitable; he was invited, and declined.

This left a free space for my own thoughts, such as they were. They were more inclined towards the meritocracy, and in particular towards Fred Stewart, Professor of Geology at Edinburgh and Chairman of the ABRC (Advisory Board for the Research Councils). Fred Stewart was invited, accepted, and duly unveiled a plaque before a large audience seated on chairs outside the front door. Other associated events included open days, a meeting of the NERC Council in Murchison House, and an ambitious Grand Ball. All former staff members of IGS were invited to the opening ceremony and to the ball, and a large number attended. They included Victor Eyles, my first DG in the Geological Survey, whom I was pleased to see and never saw again, but with whom regrettably I had barely time to exchange a couple of words.

The guiding spirit behind the initiation and organisation of the Grand Ball was Tillie Petrie, one of my recruitees in CSU 2. She was tireless in her enthusiastic arm twisting, including twisting my own arm, and I gave her considerable freedom in polishing the arrangements - which were brilliantly successful. We were provided with a sum of money to spend on the ball, which Tillie managed to substantially overspend before winding up her involvement and leaving me to find a way of absorbing the deficit. I was impressed by her calm confidence that I could deal with such little local difficulties.

Meantime life pursued its course. In 1975-6 I visited Norway/Denmark for CSU, Northern Ireland several times, the Outer Hebrides, Canada and Australia with Lucette, Malta and France on holiday. A busy two years.

Early-on the question arose of a replacement for myself as District Geologist of CSU 2. I was not on the formal appointment board, but at a preliminary paper board chaired by Austin Woodland, then Deputy Director, I argued strongly for the appointment of Denis Ardus. Although the senior internal candidate, his appointment was by no means a forgone conclusion, but after the paper board I told Denis I thought he had a sporting chance.

Denis was much more a practical marine geologist, organizer and engineer than an academic worker; he was still in his 30s and had not been in IGS for much more than six years. Very light weight for a District Geologist. I am, in fact, not aware that he

ever published any geological work in his whole career, either before or after this time. His competitor was Walter Mykura, a senior land geologist, 20 years his senior, with many varied geological publications to his credit, with an unskakable knowledge that his own way of working was the best, but with no visible signs whatever of personal offshore interest - rather in the John Wright mould. Mykura had been in my South Lowland Unit some years before, when I had had occasion to appreciate his enthusiasm and ability to get things done, but differ in opinion concerning the efficiency of his way of working. Denis was appointed to the post, but it was touch and go. The introduction of Mykura as head of the young specialist offshore group which CSU 2 had become would have been a body blow to the excellent morale of the group, although no doubt matters would have sorted themselves out in the passing of the years.

Kingsley Dunham retired at the end of 1975 and was replaced by Austin Woodland, a dyed in the wool coalfield field geologist from South Wales.

Before retiring Dunham was to give a lecture to the august Royal Society of Edinburgh, followed by a dinner with its even more august dining club. I was appointed Dunham's chauffeur, which involved attending the dinner as well as the lecture. There came a message. Dunham had met with an accident and would be two hours late. The august gentlemen waited patiently. When Dunham appeared he apologised gracefully and said he would spare his audience an account of his harrowing experiences in getting to Edinburgh. The august gentlemen sympathised and did not press him. They admired his determination, despite having been involved in an accident, to fulfil his obligations to the Edinburgh Royal.

Dunham's accident, confided to me in the car, was that travelling from Durham with a change of trains at Newcastle he had, at Newcastle, boarded the train going the wrong way and not become aware of this until he flashed southwards again through Durham. Describable as an accident only by using a fairly generous definition, but the Edinburgh Royal was spared the need to consider such details.

One of the traditions of the Edinburgh Royal Dining Club was that invitees to their dinners were required to give a speech in return for the dinner. When my turn came I distinguished myself by declining. I have never been too turned on by after dinner speaking, and on this occasion it was my view that I was not to be bullied into making an unprepared speech just because I had put myself out to transport the principal guest.

Woodland, when he became Director in succession to Dunham, would have liked some of the massive funding going into offshore work to have been diverted to the land units, but Dunham had set up the blueprint for the future of IGS expansion and there was not much Woodland could do to alter it.

This did not prevent Woodland from expressing his views, though, and he once opined in jest but in the presence of Wimpey Offshore senior staff that it would be best for IGS if mv Whitethorn were to sink. This joke did not go down too well with Wimpey, who chose to fail to forget it.

When I could spare a moment from dealing with the problems of Murchison House my conscience remembered that I was supposed to be in line charge of the four

Scottish and Northern Ireland field units. Traditionally Scottish ADs had devoted their whole time to this responsibility, although as each unit was run by a competent District Geologist, the AD's involvement was primarily of psychological and cosmetic value.

Northern Ireland was a special case due to the troubles, and I felt it incumbent on me to let the staff there know we had not forgotten them. This meant making three or four visits per year, during which I reviewed the work of each member of staff and frequently went into the field with them. I got to know them a lot better than most of the Edinburgh field staff except for those of my old South Lowland Unit.

The Northern Ireland staff were a close knit friendly bunch, partly because they were somewhat isolated in a peripheral position and partly because a war, or in this case near-war, situation seems to lead to consolidated internal relations. During my visits I was invariably invited to stay with the District Geologist, initially Harry Wilson and later Tony Griffith. At the time Harry Wilson was a part-time major in the Ulster Defence Force, and on one occasion he took me into their officers' clubhouse. It was a glorified bar, but so similar in atmosphere to equivalent World War 2 establishments that I felt I had transported backwards about 35 years in some sort of time warp.

With Tony Griffith I tended to transport back less far - just as far as my marine days. We acquired some wet suits and went into the flooded Marble Arch cave system in County Fermanagh - great masses of stalactites and with clear tourist potential, but happily undeveloped. I also brought across my own small inflatable and some diving gear, and we dived to look at a geological problem in Strangford Loch. We even decided we should consider renaming the NI Field Unit as CSU 3.

Due to the importuning of Scott Johnstone I also went on two extended excursions with the Highlands and Islands Unit, one of which was by air to the Outer Islands. Highland Pre-Cambrian geology differs in kind from the type of geology with which I have been personally concerned. It is much more complex and its study much less straightforward. My job on these expeditions was not to make any constructive suggestions but rather to express admiration, which I duly did. I also noticed the positively Alpine nature of some of the Highland vegetation, with a proliferation of small flowers in June, including numerous attractive little orchids.

In the late 1980s the search for a suitable site for radioactive waste disposal was very much on the national agenda. The overwhelming view in geological circles was that the risks involved were minimal and - insofar as they existed at all - extremely long term, but a vocal minority of the general populace did not share this opinion and was succeeding in evoking strong NIMBY reactions by protestors in all candidate areas. Partly on this account, the half dozen potential sites listed for examination in Scotland were in remote places, mostly in the highlands.

IGS, as the government geological arm, was much concerned in selection of these sites but, as the matter was regarded as sensitive, central consultation was handled by a special unit, the (carefully named) Environmental Protection Unit, based at Harwell and under the aegis of David Gray, Assistant Director of the Geophysics and Hydrogeology Unit. This did not stop the vocal minority pinning substantial blame for site selection on the field units, because it was realised that the work of the EPU

was made possible only by the existence of detailed field maps. I did in fact take part in a familiarisation tour of the potential waste sites with David Gray in September 1978.

In some areas efforts were made to intimidate field geologists going about routine mapping duties, and as the head of local field operations I became embroiled in correspondence in the Scottish press. One of my final jobs as Assistant Director was to meet a leading protestor at Murchison House with the object of trying to explain that Scottish field activities hinged, not on waste disposal, but on providing a data base for best solutions in all matters geological. The protestors' unshakeable view, however, was that if a data base, whatever its other qualities, could assist in waste disposal it was better not to have one. Rationality pitted against emotion has a problem, and I was beginning to feel I might have better ways of passing my time.

Austin Woodland was due to retire as Director IGS early in 1978, and the post was duly advertised. I did not apply, partly because there is a limit to my interest in administration, and partly because I felt NERC would ensure that whoever they wanted would be approached. In fact, NERC - dominated by academics - wished to bring in an outsider, Malcolm Brown, Professor at Durham, and in particular they did not wish to appoint the incumbent Deputy Director, Peter Sabine. This latter had a well developed knack of making himself unpopular but had nevertheless as sitting tenant been elevated to the Deputy Director post when Bullerwell died.

In the interests of propriety, however, NERC decided they must have more candidates than external academic Brown versus internal Deputy Director Sabine, so David Gray and I were invited by NERC Establishments to put in applications. What was intended was unstated although fairly transparent, but there did seem a chance that NERC had not finally made up its collective mind, and I remembered the impressive performance I had conjured up at the AD Scotland appointments board. This connected with a feeling I had inherited from schooldays that whatever my normal standard I seemed to have a facility to shoot straight when I was up against it.

To be honest, though, I was less impressed by my performance this time. I felt I was less eloquent. Malcolm Brown got the job and he turned out to be an agreeable person with whom to work, although no more one to set the Thames on fire than any of the other candidates. He seemed to have a guilty conscience about stepping over internal people, and I am sure his influence helped in getting CBEs for both David Gray and myself when in due course we retired. CBE in these circumstances smacks slightly of consolation prize for having done one's best.

Nine months before I was due to reach age 60 I decided that Merchison House was running sufficiently smoothly for my work in that respect to be regarded as complete; also I had come to the view that the other side of the job – figure-heading four land units - was a non-job.. I was moreover attracted by the idea of not leaving NERC the luxury of adjudicating if I was to retired at 60 or grudgingly permitted to freewheel on for a few more years. My immediate predecessors, Robbie and Mitchell, had both stayed on into their sixties, and the one before them, Archie McGregor, had fought tooth and nail to remain in post to the last day of his 65th year, when he was unceremoniously ejected. Hence in late 1979 I informed NERC I would be retiring on 14th August 1980, the day I attained age 60.

I received a good send-off from the Edinburgh geological circles in which I had been most active, although as my attentions had been a bit selective, I do not kid myself that appreciation of my efforts was universal. I was asked what I would like by way of parting gift from Murchison House staff, and elected for the 'Times Atlas of the World', the same as had been given to my much-missed mentor, GH Mitchell, on the comparable occasion. There was, however, significant money left over, and with this was purchased a revolving office armchair, to replace that which I was vacating at Murchison House. I can fairly claim success in having got MH off to a good start, so these parting presents were ones I feel were earned, and they have been hugely useful and appreciated.

This, however, was not the end of the matter. My contacts with Edinburgh University led to myself and Lucette being entertained to a farewell dinner by the Grant Institute (Geology Department) staff plus local BGS departmental heads. This was a glittering formal occasion in the University Senate House, the guiding lights in its organisation being Edmund Nicholas, then of BGS, and Gordon Craig of the University.

Finally there was a dinner provided by the Edinburgh Marine Units, my spiritual home, which included a good selection of present and former offshore staff. This was organised by Denis Ardus, my successor at the Continental Shelf Unit. He managed to rustle up four present/former lady staff, seated symmetrically at the four tables – Tilley Petrie, Suzan Rice, Moira Thomson and Linda Nisbet. The highlight of the occasion was the presentation of a medal which Denis called 'La Croix de Mer et de Terre'. He had had this manufactured in the shape of a French Croix de Guerre, complete with the ribbons for that medal. On the Croix de Mer side was engraved a duck upended in water and rooting in the seabed; on the Croix de Terre side was engraved an ostrich, also upended, with its head buried below the sand - references to the two themes of my Survey career, and artistically executed. The presentation was made on the basis that the medal was to be worn to all important geological occasions. I have subsequently honoured this requirement, although I confess to having regarded carrying it in my pocket as usually adequate. Anyhow, this rather unique medal involved quite a bit of organisation on the part of Denis and was a nice parting thought.