

**Obituary – Emeritus Professor Dr John Davidson McCraw (1925–2014)
MBE, MSc NZ, DSc Well, CRSNZ, FNZSSS***

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Summary

John McCraw was an Earth scientist who began working as a pedologist with Soil Bureau, DSIR, then became the Foundation Professor of Earth Sciences at the University of Waikato in Hamilton, inspiring a new generation to study and work in Earth sciences (Fig. 1). In retirement, John McCraw was an author and historian with a special emphasis on Central Otago as well as the Waikato region. Throughout his career, marked especially by exemplary leadership, accomplished administration, and commitment to his staff and students at the University of Waikato, John McCraw also contributed to the communities in which he lived through public service organizations and as a public speaker. He received a number of awards including an MBE, fellowship, and companionship, and, uniquely, is commemorated also with a glacier, a fossil, and a museum-based research room named for him. Emeritus Professor John McCraw passed away on the 14th of December, 2014. An obituary, entitled “Dedicated to earth science and his students”, was published in the *Waikato Times* on the 10th of January, 2015.



Fig.1. Emeritus Professor John McCraw in 2009.
Photo: Wendy Peel, University of Waikato.

Early life and career as pedologist, Soil Bureau, DSIR

Philip Tonkin first met John McCraw when he travelled to Hamilton to look for accommodation prior to starting as a pedologist with the Soil Bureau, DSIR. In the mid-1960s, John was the senior pedologist in the Hamilton office together with John Bruce and Mike Vennard. On this first meeting John’s personality shone through as he gave an account

of the soil and landform history of the Hamilton Basin (Grange et al., 1939; McCraw, 1967a). Many years later John was to publish updated and extended versions of this story based on subsequent research and numerous field trips with students and others around the district (McCraw, 2002a, 2011). He was a man of great personality who left his mark on those fortunate to share time with him.

John McCraw was born on the 13th of March, 1925, in Dunedin, to Robina and John McCraw and brought up in the bush-clad surroundings of the Leith Valley. His mother fostered John's interest in science, encouraging him to join Dunedin's Junior Branch of the Royal Society of New Zealand at the age of ten. He was educated at Otago Boys' High School where he was at odds with the school's tradition as John was not sports inclined and thought the teachers ruled by fear and sarcasm. In 1943 he went on to Otago University, undertaking a science degree where his interests were fostered in geology by Professor Benson and in 1945 the new lecturer-in-charge of botany, Geoff Baylis. John remembered that Dr Baylis greeted his first students resplendent in the uniform of a naval lieutenant having recently been demobilized. For his master of science degree John chose geology with a thesis study in the Takitumu Mountains alongside the thesis area of his class-mate, Douglas Coombs.

In the latter part of John's undergraduate training he, like other students, came under the War-time Manpower regulations and was directed into essential work (McCraw, 2002b). James Raeside, himself a graduate of Otago University, contacted Professor Benson with a request for two students to work on a high priority soil survey of Geraldine County. Professor Benson chose his two top students, Doug Coombs and John McCraw. The two worked through the summers of 1943-44 and 1944-45 operating from bicycles, augers strapped to their handlebars. The Geraldine survey was one of a number of soil surveys in Canterbury, eastern Otago, and Southland assessing soils suitable for growing linen flax. Britain had lost its main supply of linen flax when countries such as Belgium were overrun by the Germans. So the call went out for linen flax to be grown in New Zealand. Mosquito aircraft still had a fabric body covering made of linen flax. The New Zealand Government started a crash programme to cultivate linen flax and built some 20 to 25 factories, and a research station at Washdyke outside Timaru, in a remarkably short time. They were harvesting the crops at the same time as they were building the factories. When John was experiencing his first soil survey, the whole of South Canterbury was blue with the colour of the linen flax in flowers. It was during this time working as a student soil surveyor that John first met Ian Baumgart. Ian's university training was interrupted by several years in the New Zealand Army as a gunner surveyor on Norfolk Island. After completing his degrees, Baumgart was sent to Timaru to work on the Geraldine County survey. John claims he taught him the rudiments of soil survey and said he had a cheerful personality and they called him 'bouncing Baumgart' (see Tonkin, 2014).

John returned to Otago University to complete his masterate degree and, during this time while working part-time in the Dunedin Botanical Gardens, was again approached by James Raeside to participate in another urgent soil survey project mapping the Maniototo Plains for a proposed irrigation scheme. This survey was so urgent that the soil survey team of Raeside, Cutler, Pullar and two field assistants had to work through the winter months with extreme cold and frozen soils. John declined Raeside's request in favour of completing his masterate and subsequently started in the Timaru office of Soil Bureau in 1948 (McCraw, 2002c). When John joined this office the soil survey of the Plains and Downs of Canterbury was complete and his first job was hand colouring some the draft maps of this and of the Maniototo survey. The hand-coloured draft Maniototo maps were being rushed to urgent

meetings in Wellington by James Raeside. At this time Eddie Cutler was finishing his survey of the Lower Clutha and John and Alan (W.A.) Pullar teamed up to survey South Canterbury and North and Central Otago as part of the four-mile reconnaissance survey of the South Island. Central Otago was the big gap and they started at Middlemarch and worked their way up country. John was allowed to come home once a week and he caught the Central Otago train at about 2 o'clock on a Friday afternoon and stepped off that and onto the Express train at Dunedin and got home to Timaru at about two in the morning. He had to leave on the midnight Express on Sunday night to catch the train on Monday morning back up to Central Otago again. This was a great concession. James Raeside worried about how he was going to cover up all these expenses. John and Joan (née Megget) were recently married whereas Alan Pullar was not and so he was quite pleased to stay in a pub because this meant he did not have to pay board. John McCraw noted that "James Raeside taught me how to write a scientific paper and how to present a talk at a conference" (McCraw, 2002c).

At the end of 1948 the Timaru office was closed with James Raeside moving to Washington, USA, as Scientific Liaison Officer, Eddie Cutler eventually moving to Dunedin, and John was to go to Gisborne and Alan to Central Otago. However, Alan Pullar and James Raeside had a deep-seated resentment toward each other emanating from the role of Bomber Command toward the end of the Second World War bombing the German city of Dresden. Flight Lieutenant Pullar had been a navigator in Bomber Command (Vucetich, 1977, 1982; McCraw, 2002c). As a consequence, Raeside decided to send Pullar as far away as possible to Gisborne and by early 1949 McCraw was established in Alexandra in Central Otago. This was a pivotal point in each man's subsequent career, with Alan pioneering the mapping of tephras and their use in soil stratigraphic studies (with colleague Colin Vucetich – see Lowe et al., 2008) and John developing a life-long interest in Central Otago.

Prior to moving to Alexandra, John spent the summer of 1948-49 living at home in Dunedin during which time he completed the reconnaissance four-mile soil mapping of eastern Otago and the Otago Peninsula – working from the kitchen table. The soil surveys in Central Otago were initiated as part of a programme of the Fruit Research Section of Plant Diseases Division of DSIR investigating dieback in orchards (McCraw, 2002d). The first orchard soil survey was done by Alan Pullar in 1947. When John and wife Joan moved to Alexandra, a place to stay was their first problem. This prompted John, in these post-war years of shortages in building materials, to build his own house from sun-dried bricks (a pattern followed by Mike Leamy when he moved to Alexandra). Over the following years anyone who came to stay at the McCraws, including John's Soil Bureau colleagues, was given a task to assist in the building of the house – which went on for years.

The Soil Bureau's Alexandra office had a succession of pedologists working with John, initially on the orchard surveys and subsequently on the land use and irrigation surveys in Central Otago. Des Cowie came down in 1951-52 to help with the Alexandra orchard survey. He started in Soil Bureau as cadet and he had just finished his BSc. Des must have arrived quite early in the piece because he slept for a while in John's unfinished house in what he called the sunroom, which was not plastered, comprising just mud bricks. Shortly after, Bill Ward came and the two of them worked on the orchard soil survey with John and, when Des went off to the Manawatu, Bill stayed on. Shortly after that Michael Leamy arrived and in 1955 they all started on the Ida Valley soil survey. John recalled that this was just after his return from a visit to CSIRO Australia in 1954. The three worked through 1955 then Bill was transferred to Christchurch and Mike returned to university to complete his masterate.

In these years, Alexandra developed a reputation as an intellectual microcosm with agricultural scientists in the Department of Agriculture (Terry Ludecke, John Widdowson, and Brian Molloy), soil conservation staff in the Otago Catchment Board (Graeme Anderson, Alan Mark, Peter Wardle, and Brian Douglas), as well as the DSIR scientists. John was also involved in the local community and locally famous as a member of, and subsequently the Chief of, the local Volunteer Fire Brigade. John and Mike Leamy were involved in the establishment of the now-famous Alexandra Blossom Festival and John was one of the drivers behind the local swimming pool complex. Toward the end of his time in Alexandra, John was elected to the council.

John McCraw was involved in a number of detailed soil surveys, principally the Alexandra survey of the lower Manuherikia and adjacent parts of the Clutha Valleys (McCraw, 1964) and of the Ida Valley (McCraw, 1966a), as well as high country surveys in conjunction with the Otago Catchment Board which included Upper Shotover (McCraw, 1956) and Lower Shotover (McCraw 1966b) catchments, the Arrow Valley, the Nevis Valley, the Frazer River basin, and the Crown Terrace. John had soil scientists on exchange from the UK and Australia working with him in Central Otago. These included Brian Avery, a senior pedologist from the Soil Survey of England and Wales who was on an exchange and spent several weeks on the upper Shotover catchment and the Crown Terrace surveys. On exchange from the CSIRO Australia were Geoff Dimmock from Tasmania, who began the Upper Manuherikia survey in 1958, and in 1961 Cliff Thompson from Queensland who carried on with this survey. This survey was subsequently completed and published by Gary Orbell who arrived in Central Otago in 1963. John also co-authored the “Soils of South Island” review article as part of the three-volume set “Soils of New Zealand” (Raeside et al., 1968).

In addition to the soil surveys, John had a keen interest in the landscapes of Central Otago and the interpretation of some of the unique features such as the upland and lowland tors (McCraw, 1965) (Fig. 2), the periglacial patterned ground of the mountain tops (McCraw, 1959) (Fig. 3), the pattern of soils from basin floor to mountain uplands (McCraw, 1962a), and the soil pattern on the alluvial fans of Central Otago (McCraw, 1968a).



Fig. 2. John standing in a depression at the base of a schist tor on the Old Man Range (Obelisk tor is to the left). Photo taken in 1969 by Philip Tonkin.



Fig. 3. John in front of a stone-and-earth banked solifluction terrace on the Old Man Range. Photo taken in 1969 by Philip Tonkin.

In the summer of 1959-60, John McCraw and Graeme Claridge (Fig. 4) conducted the first study of soils and attempted to produce a soil map of the ice-free Taylor Valley in the Ross Dependency, Antarctica, and they documented other local features as well (McCraw, 1960, 1962b, 1967b, 1967c; Claridge, 1965, 2002, 2010). On his return to Alexandra, John had several American visitors just back from the ice and one was Dr A.L. Washburn, an international expert on periglacial landforms.

In the years leading up to 1962, the staff of Soil Bureau were involved in the selection of sites to represent the diversity of New Zealand's soils in preparation for the International Soil Conference to be held at Massey University in November, 1962 (McCraw, 2002e). John was involved in the selection, preparation, and sampling of sites in Central Otago and in Southland and, at Norman Taylor's request, he was sent to Northland to organize the preparation of pre-selected sites accompanied by Harry Woodyer-Smith, a friend of Taylor's from the early soil survey days. The preparation of these sites took John a couple of weeks and some fortuitous good luck, as when a Maori road worker came by as John was labouring to clear a slumped section and offered to get the county grader driver to run his blade along the cutting and do it for him. John did not get to see the prepared Northland sites as he was leading a South Island tour with Professor Tom Walker (Lincoln College). On his return from Northland, John called in on John Bruce in the Hamilton office of Soil Bureau. McCraw had been advised he was to be transferred to Hamilton at the end of the year. Returning to Alexandra there was a rush to tidy up the projects nearing completion, finalize tour arrangements for the 1962 conference, and leave things in good order. Some projects including the Ida Valley work and papers on the Antarctic survey were taken north.



Fig. 4. Painting by former Waikato student Hansen Ihle (left) of an Antarctic scene featuring Graeme Claridge (seated) and John McCraw standing outside a makeshift shelter made from a large packing case at New Harbour, Taylor Valley, Antarctica, in the summer of 1959-60 (see Claridge, 2010). David Lowe at right. The painting was gifted to the University of Waikato by Hansen to celebrate 44 years of Earth sciences' activities by the department, John McCraw's key role in initiating them, and to commemorate the university's 50th anniversary in 2014. Photo taken on the 27th of March, 2014, by Natalie Guest.

In 1963 John McCraw joined John Bruce in the cramped Frankton office in Hamilton. John Bruce had been working on the soil survey of Raglan County and the field-work was nearing completion. He had previously prepared a soil map for Hamilton City. Time was spent acquainting John McCraw with other Government departments including the Ruakura Agricultural Research Centre, familiarizing himself with the Raglan survey, and gathering background and historical information for the Waikato survey (Fig. 5). Part of the Waipa County in the Hamilton basin had been surveyed by L.I. Grange and N.H. Taylor in the 1930s and H.A. Hughes had begun mapping the Hamilton–Cambridge part of Waikato County in 1939. John's initial task was to bring these maps onto a new map base and prepare to finish that part of Waikato County as yet unmapped. In addition, he had the several outstanding projects from Central Otago and Antarctica to finish. The editing of bulletins was an exhausting process with numerous edits and retyping that went on for several years.



Fig. 5. John McCraw alongside the reference profile of the Hamilton clay loam (NZ Soil Bureau, 1968) at Church Rd, Te Rapa, Hamilton c. 1966. This soil was later re-named the Kainui silt loam (see McCraw, 1967a; Lowe, 1991, 2002c), and has its own special classification ‘box’ in the New Zealand Soil Classification (Hewitt, 2010). This site no longer exists as Church Rd lies within a housing subdivision in Hamilton. Photo: Philip Tonkin.

The Waikato–Hauraki region is noted for its large areas of peat and John was drawn into an interdepartmental committee on peat land development as well as numerous other local matters. He employed Mike Vennard as a technician (later to join him at the University of Waikato) and organized the shifting of the office into larger premises in downtown Hamilton (which, by the way, were demolished in 2014). In 1965 John spent several months on a fact-finding tour visiting soil survey and soil research institutions in the USA, Iceland, UK, Norway, and Germany, and he called in to Malaya to see Mike Leamy on his way back to New Zealand. Time was spent compiling a comprehensive report on this tour and presenting the information to Soil Bureau staff. John was consulted in planning subsequent soil research in Antarctica to be undertaken by Graeme Claridge and Ian Campbell, and by Peter Stephens from Lincoln College.

In 1966 Philip Tonkin arrived to assist with the soil survey of Waikato County and by May an outpost of the Hamilton office was established in Pukekohe with Gary Orbell beginning a soil survey of Franklin County. John Bruce left in 1967 to establish a soil survey office in Gore. In addition to the supervision of the Waikato and Franklin surveys, John had requests from the Department of Lands and Survey for one-mile soil surveys of Ohinemuri County (McCraw, 1968b) and subsequently Coromandel and Thames counties. Initially he thought the one-mile compilation sheets for the four-mile reconnaissance soil survey of the North Island could be updated to provide these soil maps, but John found that further field-work was required. In addition to these surveys, John also undertook a study of the soils on Mayor Island (Tuhua) (McCraw and Whitton, 1971) and began a study of the Alderman Islands in the Bay of Plenty. Over this time John developed a relationship with Michael Selby (at the newly-established University of Waikato that first opened its doors to students in 1964 – Acorn, 2014), offering lectures on soil classification, others to the local geological group, and talks to service groups and schools on the history of the Hamilton basin (McCraw, 1967a). In July 1968 Soil Bureau was again running field tours through North Island and South Island as part of the International Society of Soil Science Congress held in Adelaide, Australia, and John attended this congress presenting a model of soil distribution on alluvial fans (McCraw, 1968a).

In November 1968 John was selected to go on a two-week live-in administration course run by the Public Service Commission for scientists (McCraw, 2002f). As part of this course he wrote a paper with a plea for better and more relevant training for the growing number of people working in the physical environment such as catchment board officers, soil conservators, planners, pedologists, and civil engineers. This request reflected John's own work experience and the training he had received some twenty years previously. He recalled that on his first meeting with Norman Taylor he knew nothing of the nature or distribution of tephra in the North Island – volcanic ash, as it was then called, had not been mentioned in his geology tuition at Otago University in the 1940s. A revised version of this paper formed the basis of advice John gave to the University of Waikato as it was planning the establishment of a science faculty/school to be implemented from 1970.

At the end of 1968, Tonkin resigned to take up a lectureship at Lincoln College and was replaced by Joe Bell at the beginning of 1969. Joe assisted John in the survey of Coromandel and Thames counties (McCraw and Bell, 1975). In 1968, John McCraw received a DSc from Victoria University of Wellington for his soil surveys in Central Otago and for his pathfinding soil survey work in Antarctica in 1959-60. In October 1969, he resigned from Soil Bureau, DSIR, to take up the position of Foundation Professor in Earth Sciences at the School of Science, University of Waikato, in Hamilton. Technician Mike Vennard, with whom John had designed and built slide-storage and viewing cabinets, which John used until his retirement (McCraw and Vennard, 1971), left the Hamilton office of Soil Bureau soon after and joined John at the university.

University of Waikato years

John McCraw's appointment as Professor and Head of the new Department of Earth Sciences (later called Earth and Ocean Sciences from 2006-2014) at the University of Waikato led to the development of integrated courses (papers) in geology, soil science, climatology, geomorphology, and hydrology that dealt with the physical environment as a whole and which would be especially relevant to New Zealand requirements. The emphasis was on courses and research that dealt with the surface, and near surface, of the Earth, where the bulk of New Zealand's wealth is generated. The integrative concept was entirely novel at the time. In fact, other university geology departments were opposed to 'another geology department' starting up, but such opposition allowed John McCraw to complete his plans because the new department was precisely *not* going to be 'another geology department' (McCraw, 2002f). The idea of a broad geosciences department, rather than a conventional department of geology or soil science, is now widely embraced with (for example) even the University of Auckland (eventually) replacing its 'geology' programme with 'Earth sciences' in 2014.

Immediately upon starting at Waikato, John McCraw commandeered a Land Rover belonging to the university and, with son David, travelled around New Zealand collecting rocks and materials that he sent back to Waikato in sugar bags from railway stations (Acorn, 2014). One such sack, from Westport, took three weeks to get to Hamilton. On another trip south (without David), Phil Tonkin and his wife Jacky and infant son accompanied John and assisted in collecting rock and soil samples as well as monoliths of key soils from Central Otago (Fig. 6). Once home, John spent hours in a boiler suit in the basement of A-block breaking rocks with a sledge hammer and hydraulic wedge made for him by engineering friends in Alexandra (Acorn, 2014). These samples formed the first-year teaching collection and are still in use today. John, with Philip Tonkin's help in the design, colouring, and plaster work, constructed and painted a 3D model in his home garage of the geology and landforms, on which were attached the local soil series, of the Hamilton Basin as a visual teaching aid

for his classes – one of the first ‘soil-landscape models’ (literally). The model (made when John was still with Soil Bureau and prior to his moving to the university) is still used today and, despite the availability of digital diagrams and maps, is always a hit with students and with the public on university open day displays because of its simplicity and clarity as a 3D unit.



Fig. 6. John at the Butchers Dam site where part of an early Tertiary red clay paleosol is formed in a kaolinised schist regolith of (?)Mesozoic to early Tertiary age. A monolith was taken from this site, which is now a protected area (no digging allowed!). The paleosol was exposed by gold mining and is overlain by Pleistocene to Holocene fan deposits. Photo taken by Philip Tonkin in 1969.

In 1970 John McCraw appointed as his assistants firstly physical geographer Michael Selby (originally from Oxford University), who transferred from a lectureship in geography at the University of Waikato after beginning his academic career in 1964 as a junior lecturer for the Waikato Branch of the University of Auckland (Lowe and Kamp, 2002). John then appointed Harry Gibbs (March 1970) from Soil Bureau, DSIR. John wrote (McCraw, 2002f):

“Harry had missed out on the Directorship of Soil Bureau, and previous colleagues thought I was mad to take Harry on in what was a reversal of our previous roles, and with the knowledge that Harry could be rather testy. What a treasure he proved to be with his vast knowledge of soils and his prodigious memory not only of soils, but of students’ names. I cannot remember an altercation with Harry, who provided me with much needed support in the difficult task we had taken on.”

Michael Selby drew up the course prescriptions as he already had good experience of such procedures in the university, and his status as a recognized author – largely on the basis of his early-career two-volume text book “The Surface of the Earth” (Selby, 1967a, 1967b) – added early and ongoing credibility in helping to develop the research side of the fledgling department. In John McCraw’s own words (from an interview in June 2010 with Philip Tonkin):

“It is fair to say that soils were always in the back of our mind in thinking about the make-up of courses with the initial appointment of Harry Gibbs. Then we made appointments to reinforce the soil concept. Cam Nelson [appointed in February 1971] with his strong [knowledge of] stratigraphy of the King Country was asked to develop geology but not traditional geology — only a smattering of palaeontology and economic geology – and then we got Ian Simmers to do climate and water (hydrology). We didn’t do biology, as it was taught to all our Earth science students by the Department of Biological Sciences across the corridor. Otherwise we were working our way through the soil-forming factors!

With the core established, and in the face of almost overwhelming numbers, we had to appoint back-ups. [The late] Terry Healy [appointed in May 1973] was supposed to be a geomorphologist but his interest was coastal geomorphology and he immediately began to develop and strengthen this aspect and in so doing gained the first research contract for the University of Waikato. Then Roger Briggs came in [February 1975] to provide mineralogy and petrology for geology and finally [at this stage of development] Bob Allbrook [was appointed] to provide [soil] chemistry and physics for Harry.”

Other staff were appointed as student numbers grew, and courses were modified or evolved according to demand and staff interests to include geochemistry, natural hazards, coastal studies, volcanology, sedimentary geology, Earth materials, soil mechanics and engineering geology, and Quaternary studies (along with soil science, hydrology, and so on – see Balks, 2002; Lowe, 2002a, 2002b). At the time of John’s formal retirement in January, 1988, the department comprised 21 staff in total (Earth Sciences Staff, 1987). An important aspect of the establishment of Earth sciences within the School of Science was that it was expected that staff and graduates/postgraduates would collaborate across departments, and in fact a single tea-room for all school staff and graduates/postgraduates was (and remains) central to this ideal. John McCraw (commenting in 2010):

“Don Llewellyn, the [first] VC, was fed up with interdepartmental squabbles and inflexibility in Auckland [where he had been previously] and wanted the School [of Science] to be the paramount unit, and in it would be ‘subjects’. So for a start we were ‘Earth Sciences’ in the School of Science. Nobody, especially outside the university, understood this, so we became departments over Don’s opposition.”

One example of such interdepartmental collaborative work was the peat survey of New Zealand lead by (former student) Dr Tony Davoren, and initiated/coordinated by John McCraw, which involved students from both Earth Sciences and Biological Sciences (Davoren et al., 1978; McCraw, 1979a).

John McCraw teamed up with the late Dr (later Sir) Don Llewellyn, the university’s founding Vice Chancellor, and embarked on a remarkable mission to sell the University of Waikato’s School of Science, of which Earth Sciences formed a key part, to the wider community. For more than 10 years this duo spent several weeks each year visiting secondary schools stretching from Northland to East Cape and Taranaki, visiting two schools a day to talk to senior students about current research in the School of Science and in Earth Sciences. They used these opportunities to give talks to people in business and local bodies as well, and to suggest possible collaborative research thereby securing the first research contracts for the university (such contracts now form the life blood of many of the university’s research programmes) (Fig. 7).



Fig. 7. Prof John McCraw in characteristic pose, busy at his desk in the department.

Around this time, as well as serving for two terms as Dean of the School of Science (1975-84), John McCraw delivered 26 Vice-Chancellor's invitation lectures to the public in a five-year period (1976-80), each being an illustrated, purpose-written talk at lay-persons' level on the geology and landscape of their local district. An extremely accomplished speaker, John gave numerous popular talks involving Earth sciences to clubs, societies, schools and many other groups. Such talks followed a practice John began in 1948, continuing for more than 60 years. John understandably was therefore tireless in asserting the need for research to be well communicated, and he generously funded a prize, the McCraw Prize, which will continue in perpetuity, for the best oral presentation given at the Earth Sciences' annual graduate/postgraduate conference, which has been held now for 28 years since 1987.

John McCraw, although very heavily involved in administration and mainly undergraduate teaching for much of his time at Waikato, was able to conduct research and publish papers, including articles on soil surveying in the King Country and on land use and planning (e.g. McCraw, 1972, 1973, 1974). He also co-authored a paper on coastal terraces and tephrochronology in western Bay of Plenty (Selby et al., 1971), and wrote a seminal paper on tephra and loess deposits in New Zealand that was published in the proceedings of the INQUA Congress that had been held in Christchurch in 1973 (at which John had been a plenary speaker) (McCraw, 1975). These tephra-based papers led to his supervision of research students who worked on tephras including Associate Professor Alan Hogg (now a radiocarbon dating specialist) (Hogg and McCraw, 1983), Dr Peter Hodder (geochemist, tertiary administrator/manager, and writer/editor), and Professor David J. Lowe (tephrochronologist, pedologist, and Quaternarist) (see Lowe, 2002c), who appreciated and enjoyed John's unqualified support and guidance. John was supportive and intensely

dedicated to students (both undergraduate and graduate) and staff, and took a genuine interest in their work and well-being (see appended comments below from colleagues and former students). He always gave sensible advice and, although he could be blunt, any criticism was usually tactful.

John McCraw was a vastly entertaining and accomplished lecturer. He excelled at teaching first-year students, which he carried from the outset. Such students are hard work, and John poured enormous effort into them, and he truly did inspire. Large numbers of students ‘jumped ship’ from the high-school based subjects they had known, such as chemistry, maths, and biology, into the Earth sciences major directly as a result of John’s engaging first-year lectures. One thing always remembered was his advice in his opening lecture to first-year students: “To study Earth sciences you need imagination”. By this he meant the need to acquire observational and other skills, to envisage in multiple dimensions (including time), to reconstruct past events and environments using fragmentary evidence, to examine a problem from different viewpoints (and disciplines) if necessary, and to communicate in writing and orally in an imaginative and effective way. Another was his advice to fresh graduates embarking on research: “Grasp every opportunity you can to learn. You will never have as much time as now to acquire knowledge and understanding.”

John McCraw always remained firmly grounded and practical, and these attributes together with his wide interests meant he was open to unusual requests or projects that did not conform. He could always “find a way” despite regulations. For example, Professor Graeme Spiers, now a professor of geochemistry in Canada, began adulthood as a dairy farmer near Te Awamutu. In Graeme’s own words:

“Prof was responsible for my starting at Waikato in the early 70s. It all began when I went to a talk he gave in the local hall [near Te Awamutu] on “The Waters of the Waikato” [McCraw, 1971], and I have never looked back. Prof even made sure I was awarded a BSc *in spite of not following the rules*, so he has always been a special person in my personal and academic life.”

A second example is from Dr Peter de Lange, a botanist with the Department of Conservation (DOC), Auckland. Peter wrote:

“Prof was the person who convinced me to start university from the sixth form, and he always held high hopes that I would turn from botany to pedology. Instead, it was he who gave me the MSc topic that ended up as a palaeoecological and volcanic ash-related study of Kopouatai peat bog when I had been rejected as an MSc student from Victoria University for a project based on botany.”

Peter also commented that:

“Prof will always be remembered by his students for his eschewing of pomposity. He earned the epithet ‘Prof’ because he was universally respected and loved by his students, not because he expected to be known by it.”

A third example is that concerning (now retired) pharmacist and former student, Dr Brian Challinor. With John’s prompting and encouragement, Brian published his first paper in 1968 (Challinor, 1968), and went on to become a globally-recognized expert in belemnites for the Southwest Pacific, Indonesian, and Antarctic regions with 26 refereed papers to his name (another just submitted). In appreciation of John’s ongoing encouragement, Brian named for him a fossil, *Belemnopsis maccrawi* Challinor (Challinor, 1979a, 1979b). In Brian’s words (February 2015):

“I first met John McCraw when he was in charge of the DSIR Soil Bureau at Hamilton in the late 1960s. I had qualified as a pharmacist in 1953 and had been in business in Huntly for 15 years or so, and had developed an interest in geology, particularly in the Jurassic beds between Port Waikato and Kawhia Harbour. I attended Waikato University as a mature student between 1978 and 1980, graduating BSc in Earth Sciences and Biology. At the time of entry I did not have the required educational standard and Prof McCraw arranged a provisional entry during which I was required to demonstrate that I had adequate knowledge to cope with the lectures. Prof McCraw at that time lectured [to] the first-year students on introductory Earth sciences and I will never forget how he made the subject so alive and fascinating. I was able to assist the Earth Sciences Department by supplying a selection of fossils from Kawhia Harbour as teaching specimens.

Prof McCraw had convinced me that I should try my hand at writing up a paper on the fossils I had found. He did so by bringing up the subject every time we met. This led to my first publication [Challinor, 1968]. I later published a series of papers in New Zealand and overseas journals over the next 20 years or so. Prof McCraw assisted in many ways both while I was a student at the university and later.

In 1993 Prof McCraw convinced me (again using the same method as earlier) to submit a body of published work for examination for the degree of Doctor of Science (DSc) and this was duly awarded [by the University of Waikato] in 1994. I was the first student [who had studied] Earth Sciences [at the University of Waikato] to receive the degree. Without Prof McCraw’s help and support over the years I would not have been able to produce the work that I did. This was typical of his approach to both students and staff during the years that I knew him.”

Similarly, John McCraw’s pioneering contributions to Antarctic geoscience, and his support for the research and wellbeing of staff and students of the University of Waikato’s Antarctic Research Unit, were commemorated with the naming for him of the McCraw Glacier (at ~80° S) in the northern Britannia Range, Antarctica, following an expedition to the Britannia Range–Darwin Glacier region in the 1978-79 season led by Professor Michael Selby with Peter Kamp, David Lowe and the late Craig Law (Selby, 1979) (Fig. 8). (Both Peter Kamp and David Lowe are current professors in the School of Science, University of Waikato.) Selby’s party sledged (by manhauling) on the McCraw Glacier, and mapped exposures in the surrounding area, for six days from the 13th to 18th of December in 1978, as well as discovering iron meteorites on nearby Derrick Peak at the junction of the McCraw and Hatherton glaciers a few days earlier (Kamp and Lowe, 1982).

Retirement: ‘fun research’

John McCraw published more than 100 refereed articles on soil science (including survey bulletins), geology, geomorphology, and geo-education in his career. Most recently, in retirement for more than 25 years, he was very productive in undertaking what he called ‘fun research’, which included gold-mining history, archaeology and the general history of Central Otago, and he published a number of books on these and other topics (e.g. McCraw, 1991, 1992, 1998, 1999, 2000, 2001, 2002g, 2003, 2005, 2007, 2009, 2012) (Fig. 9). In recognition of the books he published about Central Otago, his frequent visits to Alexandra to undertake research for them, and the associated book launches and popular lectures he gave, John was honoured in December 2005 with the naming of a room after him at the Central Stories Museum and Art Gallery in Alexandra: the John McCraw Research Room (see also awards, below). On his temporary return to Alexandra after retiring, John was concerned to see that much of the region’s history was at risk of being lost, and hence he embarked on his Central Otago-based book writing. Happy to share his research and knowledge, John stated: “What is the good of research if it is not shared with others?” John’s botanical and historical interests also combined to generate various articles on Herbert Dobbie (McCraw, 1988a, 1989, 2013). John was additionally interested in the physical world of early Maori and wrote a series of articles relating Maori legends to Earth sciences (McCraw, 1990, 1993a, 1993b, 1994, 1995; Lowe et al., 2002) as well as a chapter on early Maori use of natural resources (Campbell and McCraw, 2008).



Fig. 8. The McCraw Glacier, northern Britannia Range, descending from the Polar Plateau (top). Photo taken from Derrick Peak in December 1978 by David Lowe.

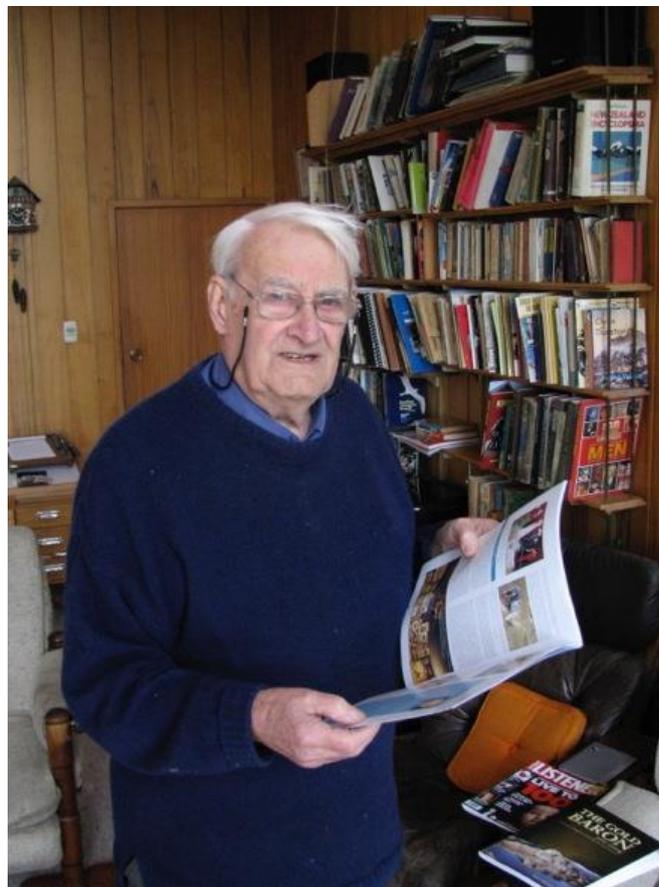


Fig. 9. John in his home in 2010 with some of the books he wrote. Photo: Philip Tonkin.

In 2011, John McCraw published one of his final books entitled *The Wandering River* (McCraw, 2011) (Fig. 10). Profusely illustrated, the guide book displays his masterly ability to write simply yet accurately and with clarity, and in an engaging style.



Fig. 10. John McCraw in full flight speaking at the launch of his book at Bennetts Campus Bookshop, University of Waikato, on the 12th of December, 2011. Photos: David Lowe.

Service and awards

John had a 70 year association with the Royal Society of New Zealand (RSNZ), beginning as a member of the Junior Group of the Otago Branch from 1935. He was an active member of the early Waikato Branch, was president of that branch from 1965-66, and was a member of the separate RSNZ Geology and Quaternary national committees during the years 1975-82. John was a foundation member of the New Zealand Society of Soil Science, and co-founder and chairman of the newly formed Waikato Branch of the Geological Society of New Zealand in 1968. Other membership and office-holding positions held by John include the National Water and Soil Authority (1976-85), the UNESCO Man and Biosphere Programme (1971-76), the Abbotsford Landslide Commission of Inquiry (1979-80) (Gallen et al., 1980), the Friends of Waikato Museum, the Friends of Hamilton Gardens, Patron of the Waikato Geological and Lapidary Society, and Advisor to the David Johnston Science Scholarship Trust. He was chairperson of the Rabbit and Land Management Task Force (1988) (McCraw, 1988b), and of the Public Consultation Committee of the Hamilton City Council Pollution Control Scheme (1994-96).

John McCraw served on the Council of the New Zealand Society of Soil Science from 1965 to 1968 and was given the Norman Taylor Memorial Lecture Award in 1978, presenting his views on an aspect of Earth sciences, namely the regolith that was generally overlooked, in his lecture entitled “No Man’s Land” (McCraw, 1979b). Following his retirement, John was appointed an Emeritus Professor of the University of Waikato (1988), and his wider service to Earth sciences was recognized by the award of Member of the Order of the British Empire (MBE) in the Queen’s Birthday Honours of 1992. He was elected one of the inaugural Fellows of the New Zealand Society of Soil Science (FNZSSS) in 1995.

Elected a Companion of the Royal Society of New Zealand (CRSNZ) in 2005, an award which recognizes “achievement at a high level of eminence in the promotion and encouragement of science and technology”, John was, without doubt, a most deserving recipient (Nelson, 2005). In 2008, John received a special Otago Community Award from the Central Otago District Council for his essential role in the preservation of knowledge and understanding of the history of Alexandra and the surrounding districts.

Legacy

The Earth sciences programme today as an integral part of the School of Science at the University of Waikato is stronger than ever. In the past few years we have appointed new staff, both academic and technical, and now have our largest-ever Earth sciences team (around 30 staff). As well as research-led teaching, we have strong research groups, at the cores of which are doctoral and masterate students, to carry on the work envisaged by John McCraw all those years ago. This thriving continuation of our discipline, which has always had strong multidisciplinary linkages with other sciences, is – alongside the countless students he has taught and inspired – surely his greatest legacy. As aptly observed by Professor Rewi Newnham (Victoria University of Wellington) at the news of John McCraw’s passing: *Kua hinga he totara i te wao nui a Taane* – “a mighty totara has fallen in the forest”.

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Appendix: A collection of comments received by the obituary authors from colleagues and former students about John McCraw. Some have been lightly edited or abridged.

John McCraw as a scientist had a strong belief that the information obtained should be handed on and understood by possible users. He spent a lot of time talking to farmers. He also listened, and both sides learned a lot. In the same vein he wrote local booklets and these were quite numerous. There was at times concern that his local-body work would impinge on his real job. However, he was in fact pretty productive. We were not concerned about staff doing their bit as citizens and a number were involved in one way or another. They deserved our support. John made a large contribution to the Council in Alexandra, both in the general running of things and in special projects. When he moved to Hamilton he maintained his wider interests and became involved in the setting up of the University of Waikato.

Dr Bruce Miller (former Director of Soil Bureau, DSIR, and a student colleague of McCraw's at the University of Otago)

I remember J.D. well from my days with the Research Division of the Department of Agriculture working in Central Otago. J.D. belonged to just about every committee in Alexandra (c. 30) and among other things was responsible for the building of a swimming pool there. We went into the field often and I remember his pillaging of the native plants on the Old Man Range for his garden. Yes, he was an awful driver as I recall when he took off down the Old Man Range, not on a 4WD track but straight through the tussocks down-hill. While on a soil survey in the Ida Valley he "cored" some steel at depth which turned out to be a buried vintage car. He had it dug up, restored it, and took it to Hamilton on a trailer when he shifted there. He had an entertaining lecturing style, much like his colleague Colin Vucetich. When I was on the organising committee of the International Quaternary Research Conference in Christchurch years ago [1973], I chose him to give the lecture on airfall deposits (loess and ash) much to the displeasure of his colleague the late Mike Leamy, who also did a stint in Central Otago. He wrote several books on various Central topics during his time in Hamilton, returning to Central often to research this and that. He also asked me to apply for a new position in botany at Waikato as I recall. He had a good productive life, was a stalwart of Soil Bureau, and I hope someone will write his story for, say, Soil News.

Dr Brian Molloy (ecologist with Department of agriculture, Botany Division DSIR, and Landcare Research)

The passing of a great man and wonderful mentor.

Professor Rewi Newnham (HOS, School of Geography, Environment and Earth Sciences, Victoria University of Wellington)

In the spring of 1959 I was assigned to accompany John McCraw and work in Antarctica with the task of producing a soil map of Antarctica. We had no concept of Antarctica, but neither did anyone else at that time. We did find some objects which could be considered soils and spent a month mapping them in the Taylor Valley and elsewhere. I was merely the spade and sample carrier as my part came later in the laboratory. John and I got on well together and spent a lot of our time in the field discussing the significance of what we saw. John and I published our findings and became the experts in this narrow field of science for a short time. John was the ideal field companion, especially in instructing someone like me who at that time had had little field experience. We remained friends ever since and I will miss him very much.

Dr Graeme Claridge (retired, Soil Bureau, DSIR)

I met him only a couple of times. Colin Vucetich always spoke very highly of him for his mapping and landscape models on the fans of Central Otago, and used his work when trying to educate me. Once during my PhD at Victoria, I hitchhiked to Rotorua and met Colin. We spent two glorious days with Alan Pullar in Rotorua and Whakatane followed by a day in the Waikato with J.D. McCraw.

Dr Alan Palmer (senior lecturer in pedology, Massey University)

J.D. or 'Prof' as he was affectionately known by his students was a vastly entertaining lecturer from whom I learned much, and at least initially my MSc co-supervisor (main supervisor was David Lowe). Prof did much to bring a new perspective on what had been regarded as a 'dry' subject – soils – as he eschewed traditional geology and preferred that his new department focus on the Quaternary sciences, and he specialized in studying 'regolith' (the 'stuff' you find above the hard rocks that geologists ignore: so said J.D.). A Dunedin lad, he started out wanting to be a botanist but got side-tracked into Earth sciences. Despite his love of soils and Quaternary geology, he retained an interest in botany and he had a spectacular garden at his house in Silverdale, Hamilton, specialising in irises, rhododendrons, camelias, alpine plants and ferns (he was proud that he had *Leptopteris superba* growing); he also collected books – his house was a trap for a bibliophile, and a visit there usually involved him having to clear a path through his numerous, unstable book towers. J.D. also collected cars...

J.D. will always be remembered by his students for his loathing of pomposity. He wore suits out of a sense of obligation but often in a way that looked like he had slept in them. He loved to dramatize his lectures with prancing about and shouting and flourishes. On his retirement he surprised us all by sporting the loudest Hawaiian shirts he could find, and also by purchasing his first ever computer (an Apple Mac) from which he wrote a series of books...

Dr Peter de Lange (senior botanist/principal science advisor, DOC, Auckland, and adjunct professor, Università degli Studi di Sassari, Italy)

This is sad news indeed. I was one of the first to study Earth sciences [at Waikato]. John and Harry Gibbs played an important part not only in my university study but also John kick-started my career. He supervised and guided me through the peat survey of New Zealand [Davoren et al., 1978], and I still get asked for copies of the report.

Dr Tony Davoren (HydroServices, Christchurch)

Thank you, Prof McCraw, for enthusing me in first year Earth sciences all those years ago. The photographs of all the different geomorphic features brought Earth sciences alive for me. Ultimately it led to me swapping from Biology to Earth sciences in my masterate years. Today, I still remember the landforms and have now visited a number of sites [in Central Otago]. The periglacial landscapes on the southern side of the Old Man and Old Woman and Garvie Ranges in Central Otago are still present and untouched. One day I hope these magnificent landforms are permanently protected by becoming part of a Central Otago National Park. Those who captivate each generation leave a seed for the next generation – thanks Prof.

Ken Murray (DOC, Christchurch)

The Soils Group at Massey [University] wish to pass on their condolences and wishes of support to Prof. McCaw's family, particularly from our older and retired members of staff, Vince Neall and Jim Pollok, who were contemporary colleagues of John's.

Professor Mike Hedley (Group Leader, Soil and Earth Sciences, Institute of Agriculture and Environment, Massey University)

Prof McCraw taught me that there are stories in the landscape just waiting to be told. There is good science to be had in elucidating the story and there is also an ‘art’ in telling the story to captivate an audience. He was master at both. Prof’s lectures to first-year Earth science students captivated me in the 1970s with well-illustrated stories of plate tectonics, the fossil record and climate change from Antarctic studies. I can’t help but wonder whether Prof would think that the current emphasis on climate change would be better viewed from a geologic context rather than the just a few decades.

Prof assembled a team to teach the breadth of Earth sciences and I have reflected many times in my career how well taught I was to undertake the work I have done. This is illustrated by me being able to map and describe land systems in the tropical north of Western Australia as I had an appreciation of tectonically stable landscapes and Earth processes in arid environments taught to me at the University of Waikato. However, Prof did forget to teach me about the flies and crocodiles! I don’t know the politics of how Prof convinced Harry Gibbs to join the teaching staff at the university, but I was one who certainly benefited. Their joint experience of many years mapping and describing soils meant that they were able to teach me pedology that requires an understanding of Earth sciences in a landscape context, not just soils, and being able to apply that knowledge in the field. There are many times that I have been forced into a soil pit at short notice and expected to come up with a ‘story’ about what is going on and how it got there. I was taught well by Prof McCraw and his staff. Prof encouraged an open dialogue with his students and I am still impressed with the student engagement and degree of responsibility given to students on the ‘boards of studies’. These were regular meetings, providing an opportunity for students and staff to discuss a wide range of matters and he even backed a proposal to change the appearance of the university’s degree certificate. I don’t think he appreciated all the things we students did, including placing his Fiat 500/Bambina [on the loading-bay platform: see photo below], but he no doubt considered it as just another student stunt.

Dr Bill Cotching (independent soil management consultant, Tasmania)



Prof McCraw’s famed Fiat 500 (of which he had quite a number over the years) sitting alone on a loading platform in the School of Science, University of Waikato, after a ‘hand-up’ by students of his department (in the late 1970s). Held in high regard and genuine affection by his students, Prof was rather annoyed at the time but (as Bill notes above) undoubtedly saw the funny side a bit later after the situation had been retrieved mechanically. Photo (probably) by Rex Julian, University of Waikato.

Annette [née Milne] and I are very saddened to hear of Prof's passing. There are some people in this world who shouldn't be permitted to pass on. Prof was one such person. [David Lowe] mentioned in his eulogy that many students "jumped ship from the high-school based subjects we'd known into the Earth sciences as a result of Prof's engaging 1st-year lectures". I was one of these students. I went to university to major in chemistry and it was at a time when Continental Drift was being superseded by Plate Tectonics. This is an extremely interesting area in its own right but Prof had a wonderful gift of turning an already fascinating subject into something extraordinarily gripping and captivating. His lectures were inspiring and beautifully delivered and he will be remembered by all who had the privilege of attending them. We owe him a great debt of gratitude for inspiring us to follow interesting and rewarding career paths.

T. Graham Shepherd (soil scientist/agricultural advisor, BioAgriNomics, Palmerston North)

Thanks for advising me of the sad news. I was just talking of the session at Waikato University last year [, when I visited and presented a seminar,] to a couple of colleagues over the weekend, and saying how delighted I was to have 'the Prof' come and listen, and to sit and chat with a REAL prof for an hour or so afterwards (with a mention of his being the only Earth scientist in New Zealand to have received a 'gong' from the Government) [the MBE award]. It was a great privilege to know the Prof ... he is still the only prof I refer to as THE PROF.

Professor Graeme Spiers (Chair, Environmental Monitoring, Departments of Chemistry, Earth Science and Biology, Laurentian University, Canada)

My first encounter with John McCraw was in the early stages of my doctoral studies at Waikato. Alex Wilson [my chief supervisor], Harry Gibbs, and John McCraw accompanied me on my first field trip. As we were returning to the university the vehicle ran out of fuel on the Tamahere Straight [just outside Hamilton]. The three professors argued among themselves for quite a while, then decided I should steer the vehicle, while all three of them pushed it to the nearest petrol station. A few years later when I joined the staff at Waikato, I took over the teaching of an 'Earth History' course from John McCraw, and he became my informal mentor. A somewhat gruff but kindly man, my recollection is that he steered the Earth sciences ship well, encouraging newcomers like me to develop their own research interests, but subtly indicating where those interests might help in the department's teaching endeavours. In addition, he contributed much to the wider university, having perspectives that went far beyond his own academic discipline. I thought this breadth of approach admirable and have tried to emulate it during my subsequent career. At the time of his retirement, he identified some of his projects to be undertaken thereafter as "fun research". As I approach my own retirement, I have taken that idea on board too. John McCraw's influence on my own career has been subtle yet pervasive; I suspect that, on reflection, there will be many of his students and colleagues who would concur with that view.

Dr Peter Hodder (Manager, Accreditation Victoria Business School, Victoria University of Wellington)

Thank you for advising us of Prof McCraw's passing. You have our sincere condolences. We understand the significance he held in his role as founding professor of Earth Sciences at the University of Waikato. His legacy is the great work that you and your colleagues continue today.

Associate Professor Peter Almond (HOD, Soil and Physical Sciences, Lincoln University)

As a part-time mature student in the 1970s I was so grateful to Prof McCraw for his teaching and encouragement during my undergraduate and masterate degrees at Waikato University and also when I returned ‘jobless’ from the UK to Hamilton in 1986, when he offered me a position as a first-year tutor in the Department of Earth Sciences. He was instrumental in supporting my enrolment for a D.Phil. in soil physics research in 1986, which was completed part-time a few years later during a marvellous and exciting growth period in the Department of Earth Sciences, both in student numbers and academic achievement, of which I was privileged to be part.

Prof McCraw was Head of Department and Dean at various times during this period, reflecting his status in the School of Science. The successful development of the department and popularity of degrees was in great part due to his governance and encouragement and enthusiastic support of both students and staff coupled with his shrewd management of resources. When I left the university in 2000 to set up my own company, Soil and Land Evaluation Ltd, it was Prof McCraw who offered me some excellent advice on consultancy and working independently in the corporate world. Since that time and until recently, whenever we have met, he always enquired about the business and how things were at and whether the soil maps that he compiled in the 1950s and 1960s are still relevant, followed by the comment, “Well, you know it’s always a matter of scale”.

Dr Richard Chapman (Soil and Land Evaluation, Hamilton)

John McCraw, though I never worked directly with him, has had a huge influence on my career – wherever I went he had pioneered the way. My first “real” job was working on soil survey for irrigation in Central Otago with DSIR Soil Bureau. J.D. McCraw did much of the early soil survey work and was the author of numerous soil surveys in Central Otago, thus he had established the basis of the soil-landscape models and series definitions that were [the] key to my ongoing work. I arrived at Waikato University just after Prof McCraw retired and I was assigned some of his first-year lectures. The basis of my lectures still contain an echo of his original structure and content (and I would like to think entertaining down-to-earth communication style). John McCraw, with Graeme Claridge, undertook the first New Zealand soil science expedition to Antarctica. I have had a long career following in his footsteps there. Prof McCraw founded and led the Department of Earth Sciences, and I served two terms as the department chairperson. Through all the 26 years I have been at Waikato, Prof has been an inspiring influence and example, through his public presentations, ongoing publications, and genial interest in the affairs of the department. He was a wonderful presence and personality and I will miss him greatly.

Dr Megan Balks (senior lecturer in Earth Sciences, School of Science, University of Waikato)

I was quite shocked and saddened to hear of John McCraw’s fatal accident. The end of an era in many ways: the last telegram I ever sent anyone was a congratulatory one to him from Switzerland on the occasion of his retirement (shortly thereafter telegram technology became redundant). As a student I attended his lectures and seminars, etc., which I remember as being informative, digestible and delivered with very human touches, including his soft humour. For example I remember one seminar in which a person informed him (I can’t remember the exact context now) that “... only one in ca. three bore holes was successful”, to which John replied “... why not consider the first two as having been virtual and then start directly on the third one?” For me at that time he was more of a heroic “grey eminence”, rather than someone I had any real personal contact with.

Dr Guy Lister (formerly Geologisches Institut, ETH-Zentrum, Zurich)

It was in March 1970 that I first met Professor John McCraw. I was treating my first year as a general intermediate year, not knowing what I actually wanted to do. Within a short time he had turned my world upside down. I no longer saw the land, the rocks and the soil as static but as things on the move. Harry Gibbs always referred to the living soil! Mike Selby and Cam Nelson provided valuable assistance on geomorphology and sedimentology, but it was John McCraw who, with his feet firmly planted in the ground with his eyes on, and seemingly over, the horizon, that inspired me to follow a career in Earth sciences. The two first-year Earth sciences papers were also the only papers I passed, having found that the Raglan surf and a female student more attractive alternatives to physics, chemistry, biology and maths. Whilst other lecturers talked from an academic perspective, John talked about things he had done, not just things that he knew. He (and Harry) had turned to academia after living a real life, and his inspiration was instrumental in me having a rewarding career in the applied Earth sciences. If John had not been there in 1970, I may well have ended my university studies then and there. But there would be no more failed papers, because I now saw the world through different eyes ... the eyes of John McCraw, and what an exciting world it was.

Nick Rogers OBE (engineering geologist, Tonkin and Taylor, Auckland)

Professor John McCraw was a close friend, academic par excellence, and mentor to me for many years. I first noticed Professor McCraw during a demonstration I gave at the Waikato Museum making and using stone adzes in 1995 to a full-capacity gallery. I couldn't help but notice this white haired, regal bearing, noble man of intelligence staring at my every move from a chair. It astounded him to see both Mr Dante Bonica and me flaking cobbles of basalt and argillite into preform adzes and using already finished ones on wood. This encounter began a close friendship ever since. Prof McCraw taught me over many hours of discussions with him at his home, often with "The McCraw experience", a one-hour talk on Earth sciences across the spectrum. I would sometimes take a few adzes and slabs of sandstone including the odd chunk of hematite and ferrihydrite to show him how pre-European Maori used these resources. My common test for him in return was a "Te Wiremu experience", and to see if he could tell the difference with my adzes and some of the old ones as I laid them out at his feet, pulling out his magnifying glass for a closer look!

Prof worked hard to unlock many of the Maori narratives and legends and how many of them aligned themselves with Western sciences. We travelled across the Waikato together and I translated many of the old Maori place names such as Tokanui (big rock) and Karaapiro (rotten rock) used to classify stones and rocks that were used by my ancestors in the hope and understanding that he would draw more Maori students into Earth sciences.

I miss Professor McCraw a lot. He was like a kaumatua, an elder, a mentor, and a great friend and I am humbled to have sat at the feet of such a giant and to receive his wise intelligent counsel. May you rest well, Professor J.D. McCraw. Moe mai ra e aku Rangatira.

Wiremu Puke (RMA practitioner, stone-tool carver of Ngati Porou and Ngati Wairere descent, and empirical ethnographic researcher)

[Wiremu was project designer of the Te Parapara Garden, Hamilton Gardens, which was featured at the NZSSS conference in Hamilton in early December, 2014.]

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