

Russell Black (1930 – 2009)

Russell Black was born on June 20th, 1930 in La Rochelle, France, to Scottish parents. This dual origin became a major characteristic of Russell's personality as he developed into a mature, generous, sensitive, extremely talented adult. Completely bilingual, possessing two passports, a French and a British one that he selected for use depending on the political situation in the country to which he was assigned. During the early part of his career he migrated between British and French colonial Geological Surveys. This double affiliation was a fantastic asset during the nineteen-sixties when few British or European geologists were keen to read scientific papers written in each others' language, and when the geological scientific concepts on both sides of the channel were so different. Bilingual Russell readily accepted the challenge by combining the contrasting styles of Anglophone and Francophone thinking.

He spent the first ten years of his life in France, in La Rochelle, Pau and Niort. His father, initiator of the use of hollow glass floats for fishing nets of trawlers in the nineteen-twenties, encouraged his son's intellectual interests in many areas, particularly in science. Following the outbreak of the second World War in 1939, and coincident with the fall of France in June 1940, the family managed to escape by sea to Argyll, on the North-West coast of Scotland, but their ship was the sole survivor en route as two others in the convoy were sunk by the German navy. This dramatic change of country with different language and traditions, at the tender age of 10 years, strongly stimulated the critical mind of young Russell. Depending on which side of the Channel is your habitat, a country's history such as Napoleon's Waterloo is not taught exactly in the same manner!

After obtaining his Scottish Higher Leaving Certificate in 1946, he hesitated between going to Art School or to University. He finally decided for the latter but remained throughout his life an enthusiastic watercolour painter. This was an important period for his development. In 1946, only 10% of school students had access to university, the other places being reserved for war veterans whose University entrance had been delayed for five years. This meant that Russell had to work hard to gain recognition amongst his older contemporaries who had gained life experience in Europe and North Africa.

Three University members of staff at the University of Aberdeen, North East Scotland, shaped the geological mind of Russell. Stanley Westoll, palaeontologist and expert on Devonian fishes, an early supporter of continental drift, was one of the first to stimulate Russell's interest in geology. T.C. Phemister Head of Department, crystallographer, was one of the first European geologists, before the war, to study aqueous ternary silicate systems in Norman Bowen's lab in the USA, and to ascribe a magmatic origin for the Canadian Coastal batholith. Russell admired Phemister not only for his earth science but also as an excellent artist who sold his best paintings to Her Majesty the Queen. R.V. Jones, geophysicist, who was then a very young Director of the RAF Intelligence Service, and a friend of Winston Churchill, showed to Russell that Earth Science is a wonderful game in which to be involved. Thus through the influence of Westoll, Phemister, and Jones, Russell graduated in 1950 with a BSc. (First Class Honours in Geology).

As part of his BSc degree training, Professor Phemister encouraged Russell to undertake three months fieldwork on the Jos Plateau, northern Nigeria, for his final year Honours mapping project. This experience so impressed

Russell that he applied immediately on graduating for a post as Geologist in the British Overseas Geological Survey and returned to Nigeria based at Headquarters in Kaduna. A compulsory requirement at that time for field work in West Africa was to acquire a working knowledge of Hausa, the *lingua franca* for West Africa, which allowed Russell to live, work, and to mingle closely with various local communities. Initially he conducted a series of assignments such as drilling for water at Maiduguri, and studied Pb–Zn mineralization in the Benue valley. However, his main scientific interest culminated with the Survey's mapping project of the Jurassic tin-zinc mineralized alkaline ring complexes on the Jos plateau. Russell was guided in the field by the occasionally cantankerous Director Reginald Jacobson, and ably assisted by the affable Bill MacLeod, both excellent field geologists from Melbourne, Australia. They revealed to Russell the importance of precision in cartography coupled with the artistic aspect of geological observations. During that period, he met Herbert Read and Wallace Pitcher at Imperial College, University of London, and W.Q. Kennedy who founded the Institute of African Geology at the University of Leeds. Read, Pitcher and Kennedy were so impressed by the scientific discovery of the alkaline tin-zinc bearing granites in Nigeria that they instigated the publication of the very first Memoir of the Geological Society of London (*Jacobson, R.R.E., MacLeod, W.N. and Black, R., 1958. Ring complexes in the Younger granite Province of Northern Nigeria, Mem. Geol. Soc. Lond., 1, 72 pp*). For this Memoir, all figures were drawn by Russell in a manner which combined both his artistic and scientific talents.

He participated at the International Geological Congress in 1952 at Algiers during which time he took part in a field excursion to the Hoggar in south-eastern Algeria. He met there several important personalities among whom was Pierre Pruvost who ten years later became his main supporter at the CNRS. He also met Maurice Lelubre, “father” of Hoggar geology, an exquisite man and of great intellectual integrity for whom Russell had much admiration.

Russell obtained his PhD degree at Aberdeen University in 1958 for a field and laboratory study focused on the intricate Rop ring complex in northern Nigeria. During his decade in Nigeria, Russell communicated regularly with French geologists from the 'Afrique Occidentale Française', AOF, who were working across the northern Nigerian border in Niger. They invited him on a wonderful field trip to the Air Mountains, near Arlit, which was to have a substantial influence on his subsequent geological research. It prompted him to change his allegiance to the 'Service de Géologie et de Prospection Minière de l'AOF', based in Dakar, Senegal and later to be absorbed into the BRGM. This initiated a remarkable period of active field work in French-speaking West Africa and gave Russell a great deal of personal satisfaction. He had the complete confidence of his Superiors in Dakar, Mr Sala and de Villejane, and developed amicable professional exchanges in the French language with colleagues amongst whom was Jean Sougy who remained a solid and faithful supporter for Russell. After a few months in Dahomey (now Benin) during 1959, he was then promoted in charge of the geological mapping of the ring complexes in the Damagaram region in southern Niger. He spent the following three years from October 1960 until June 1963 surveying the Air massif, covering a surface area of 60,000 km² to the north of the Damagaram, constructing a geological map of the region with the aid of aerial photographs. His observations not only involved the Air alkaline ring complexes which in this region are remarkable in number, dimension, and presence of quenched anorthositic margins, but also the superbly outcropping Pan-African granite–gneiss basement country rocks which were to become the main theme of his research endeavours.

As Officer of the 'Ordre National du Niger', Russell returned to BRGM France during 1964 to complete substantial laboratory research on material collected during his Niger field campaign. He acquired 3000 to 4000

samples from strategic outcrops, and succeeded in publishing a 1/500,000e geological map of this “terra incognita”, which remains to this day a major reference source. For this work, he was based at BRGM Paris and at the Department of Geology at Université Blaise Pascal in Clermont-Ferrand where Maurice Roques totally incorporated him into his West African research team even though they did not necessarily agree on the nature of the metamorphism, and tectonics of West Africa.

During this period, Russell turned towards other fundamental geological problems. He published two remarkable papers, which have become milestones in the history of Pan-African studies (Black, 1966, 1967). He demonstrated conclusively that the Pan-African is actually a true orogen, and not a “thermo-tectonic event” as considered by most researchers at that time following Kennedy (1964). One can say that if W.Q. Kennedy created the concept of a “Pan-African” episode to embrace the Rb/Sr 500 ± 50 Ma thermo-tectonic history of Africa, Russell Black pioneered the term “Pan-African orogeny”. His “orogenic” concept based on field observations in the Aïr Mountains, was fully endorsed by the participants attending the fifth Colloquium on African Geology in 1968, which he organized at Université Blaise Pascal in Clermont-Ferrand. During the same period, he was already beginning to be impressed by the petrological similarities and tectonic differences which existed between intraplate magmatism located within and peripheral to cratons and that found within mobile belts. For example, he remarked that silica-undersaturated alkaline plutons always intrude basement older by at least 500 m.y, while it is the inverse for silica-saturated complexes, either post-collisional or truly anorogenic.

After his few years back in Europe completing reports on the Niger BRGM programme, his longing to return to Africa again became too strong. He accepted a position as Overseas Professor of Geology in the Institute of African Geology, University of Leeds, seconded to the University of Addis-Ababa, Ethiopia, funded by the British Council, where he remained for five years (1970–1974). Robert Shackleton joined him for one year in Addis-Ababa in 1970-1971 as Royal Society Leverhulme Visiting Professor.

During the period 1970-1974, Russell Black served as Head of Department of Geology at the then Haile Selassie Ist University, currently Addis-Ababa University. It was a critical moment as students were not only academically strong but very much politically involved to change the long time ruling system of Emperor Haile Sellassie Ist.

Russell had a vision of making the Department of Geology a centre of excellence in East Africa.. He initiated and strengthened several activities related to enhancing academic and research excellence. He introduced rigorous, critical admission procedures for recruiting undergraduate students to the Department of Geology in order to ensure their fitness for outdoor activities. He launched a Scholarship Scheme for academically outstanding students in collaboration with the Geological Survey of Ethiopia (Aberra Mogessie was one of the first beneficiaries). Funds were also allocated for a Visiting Lecturer’s Scheme so that he could invite prominent scholars to the Department for short term visits. As well as supporting Robert Shackleton and his Team from the University of Leeds, Institute of Geology, Professor W.S. Fyfe was among the many scholars who visited Ethiopia, lectured in the Department and participated on field trips. Furthermore, Russell strengthened the culture of seminars and lectures by visiting researchers in order to expose students and staff to new developments. He ensured that the Department’s standards were maintained in all levels of activities. Final year

undergraduate students were evaluated by external examiners from overseas universities. Most of the final examination papers were based on expertise from the University of Leeds and Aberdeen, and were used to improve the academic standards of the students in Addis Ababa. Some of Russell's first undergraduate students conducted high-level field research locally, and their geological maps of the city of Addis Ababa still serve as a basis for further work today.

In the field of human resources development, Russell made sure that staff and students in the Department pursued higher levels of education in fields of their choice, and further tried to nurture their inclinations by all means possible. Apart from that, he was a strong advocate of Ethiopianization of the Department and the University. To achieve this objective, he initiated the recruitment of Ethiopian staff from among the best graduates of the Department, as well as recruiting Ethiopian professionals from other Institutions.

Last but not least was the secure basis of physical and financial resources for the development of the Geology Department. He solicited funds from NERC (Natural Environmental Research Council, UK) and bought an X-Ray diffractometer; wooden crystal models for crystallography exercises; and field vehicles for the Department. He strengthened the thin-section laboratory of the Department in such a way that it could generate funds from researchers working in Ethiopia.

Russell was actually teaching metamorphic and igneous petrology. However, there were times where he was involved in teaching paleontology when the Department had to fill such a gap of academic staff. Those of us who were his students remember that he often entered the lecture room ahead of time and drew on the blackboard all the fossils he was going to teach during the lecture. By looking at his drawings, it was easy to realize that he was a very good artist. He proved this during field mapping seasons with students. There, he woke up early in the morning when everybody was sleeping, sat at a location where he could view the landscape for his painting. He was both a dedicated teacher and an academic father for a generation of Ethiopian students, who will be long remembered.

In addition to his paramount action in Ethiopian higher education, Russell was also very active in scientific research along with the scholars who came to the Addis-Abba laboratory. Robert Shackleton remained a life-long close friend and a major source of scientific inspiration. At the same time, Russell had close contacts with other geologists such as Ken Bailey and John Ramsay whose enthusiastic scientific elegance were a great source of stimulation. In Ethiopia, he collaborated with the CNRS-CNR team in Northern Afar, discovering Tertiary alkaline granites with miarolitic cavities in the margin and centre of the Danakil depression, more than 300 m below sea level. Moving to the south, his mapping proved that the major part of the Afar is not oceanic crust but stretched continental crust through rotation of crustal blocks displaying structures he predicted to be those of "trailing continental margins". He worked in Ethiopia with European colleagues, Haroun Tazieff, Franco Barberi, Giorgio Marinelli, Jacques Varet and Bill Morton, his University Deputy, unfortunately killed during the Marxist revolution. But his main satisfaction during this Ethiopian period was to have educated a generation of Ethiopian geologists, several of whom have since had international careers. In Addis-Ababa, he launched the Geological Society of Africa (GSAf) with Prof. Soba Oyawoye from the University of Ibadan, Nigeria. The current President of GSAf is one of his former Ethiopian students, Aberra Mogessie, co-author of this obituary. His period in Addis-Abba coincided with his marriage to José, whom he had first met in northern Nigeria in 1953 when she was a nurse at the local hospital. José's first husband died suddenly leaving a growing family

which Russell readily adopted and groomed into adulthood. José and Russell lived closely together, enjoying life and its treasures. Russell often said that he loved being in Ethiopia with marriage and geology intertwined.

In 1974, anticipating the arrival of political upheaval in Ethiopia, he decided to return to Europe and joined the CNRS research group in Montpellier to set up with Jean Marçais, Pierre Louis and Jean Fabre, the 'Centre Géologique et Géophysique' CGG. The idea was to focus the CGG on geological mapping of the eastern margin of the West African craton in the Malian Sahara of the Adrar des Iforas. This region consists of Pan-African granite–gneiss basement and metavolcanic rocks cut by alkaline ring complexes, an ideal geological situation with which Russell was already familiar after working in Aïr. As the Director of a brilliant, creative and efficient team of geologists, including Jean Fabre, Renaud Caby, Jean-Michel Bertrand, Anne-Marie Boullier, Alexis Moussine-Pouchkine, Jeannine Sarfati, Claude Dupuy and others, Russell organised close collaboration with CGG geophysicists such as Alain Lesquer and Roger Bayer. Alternating long periods of field work in the Adrar des Iforas with systematic laboratory studies on critical samples, this multidisciplinary team demonstrated conclusively in 1979, with a key article in *Nature*, that the Trans-Saharan Pan-African belt can be interpreted following modern plate-tectonic concepts. Such a discovery constituted the starting point for numerous international publications culminating in 1982 with the presentation of a detailed 1/500,000e geological map of the Adrar des Iforas. Russell's sojourn at the University of Montpellier was a period of international cooperation with numerous scientists such as geophysicist Ted Irving who were invited to join the CGG group on secondment making it one of the main centres of African Geology in the world.

After the end of the successful Iforas project in 1980, Russell moved from Montpellier to the Laboratory of Petrology at the University of Paris VI, directed by Prof. Jean Lameyre, a former colleague from Clermont-Ferrand. At this Laboratory, as CNRS Directeur de Recherches, he was able to review his abundant African data in cooperation with Bernard Bonin and André Giret.

In 1991, he joined the Laboratory of Mineralogy at the National Museum of Natural History where he was reunited with Jacques Fabriès, a former colleague and mineralogist who worked extensively for the Governmental Department of Mines at Agadez in southern Niger. The nineteen-nineties were a fruitful period of renewed collaboration with European friends and colleagues including Jean Didier, from Clermont-Ferrand, Jean Boissonnas, a former Saharian geologist seconded to the European Commission, Peter Bowden, Editor in Chief of the *Journal of African Earth Sciences* at the University of St Andrews, and Jean-Claude Bidet, from CIFEG-BRGM Paris. This period also corresponded to the establishment of a close, regular, dynamic collaboration with Jean-Paul Liégeois, geochronologist at RMCA Tervuren, which led to the publication of numerous papers on the Pan African. This association between a younger geologist with access to modern analytical facilities and a wily African veteran was built on reciprocity and mutual respect. Russell Black was an exceptional guide, with all the ramifications of that word. During the past fifteen years of his active life, he developed his ideas concerning alkaline rocks and the Pan-African orogeny which led him to present the first coherent geodynamical synthesis of the Tuareg shield as well as establishing links between African and European Research centres. Supervisor to several African theses, he cooperated with several institutions such as CIFEG, UNDP or UNESCO. Russell never worked on European Geology. He considered that only in the Sahara could one observe large scale structures such as an island arc, a batholith, etc, and that there will always be need to work at a grand scale in the

hope of achieving a full understanding. The essential lines of Russell's thoughts in geology are based on important observations gained from long periods of field work in different well-exposed regions. As in the case of mapping 60,000 km² of continuous outcrops in Aïr, the only sensible method of tackling such a huge problem, according to Russell, was to make precise and detailed observations in key cross-sections, rather than trying to sample the whole area rapidly. This approach necessarily leads to interpolations which, however, rest on a strong basis. A conclusion of such an approach is, for instance, that alkaline ring complexes all have similar characteristics, differing only by variable proportions of rock-types, whatever their geotectonic environment. For instance post-collisional Iforas, intraplate Aïr and Nigeria, or ocean-opening Afar, suggest a ubiquitous mantle source. Detailed studies also show that these complexes, often considered as 'anorogenic', are always linked to reworking of major lithospheric structures associated with distant stress-fields. Russell was an early opponent of the mantle-plume hypothesis which he believed was poor thinking, based on an unconstrained explanation for intraplate magmatism by lazy scientists not accustomed to studying the country-rocks in the field where the constraints can be readily observed. His study of the Pan-African orogen in the Tuareg shield, and particularly in Aïr, has confirmed the major role played by sub-vertical mega-shear zones. From this discovery, the concept of "terrane mobility" in the Saharan Precambrian was developed, and that cratons and mobile belts differ fundamentally not in their crustal nature, but in their lithospheric structure. A summary and application of these fundamental ideas can be found in the special issue of *Lithos* (volume 45, 1998) on Post-Collisional Magmatism, dedicated to Russell for his immense scientific achievements (27 articles, 560 pages).

Ten years ago, Russell was subjected to a major operation for cancer of the throat, which left him after a major reconstruction of tongue and larynx in a difficult physical state, unable to speak clearly in either English or French, but still with a sharp mind. However, it must be said that his last ten years were difficult especially since he lost his step-daughter Aude and his wife José in the same year, 2000. Russell died of cancer on January 16th, 2009, 78 years old but did not suffer, having been treated by the best centre of palliative medicine in France. He is survived by a family of two step-sons, eight grand-children and one great-grand-child.

We received many e-mails from colleagues when Russell died. Several colleagues met him only once, sometimes decades ago, but they still retain a strong, positive, clear image of him in their mind of his grand scientific expertise as well as his modesty, declaring that their unique meeting with him strongly influenced the direction of their careers. A German colleague once told us that he will never forget his first encounter with Russell Black. That was in 1983 during a conference on Alkaline Ring-Complexes held at the University of Zaria, Nigeria. He was a young PhD student at the time, new to Africa. One can imagine Russell Black, 1.95 metre's high, 115 kg rotund, arriving directly from the Sahara in field-dress during the middle of a colleagues' presentation. Everybody turned their head towards him. He simply said "Major news, we discovered CARBONATITES in Malian Sahara". He was coming from the Adrar des Iforas, loaded with samples, 1,000 km from Zaria, using local taxis as the main form of transport! The news of this discovery subsequently generated an important paper published in *Nature*. Our German colleague said that he will never forget such an image of a true geologist totally impregnated by his science, both mentally and physically.

A Chadian colleague, now occupying an important governmental position, said that Russell was the first to introduce him to the realm of African research, and a Cameroonian colleague indicated that, although he had

never met him, he avidly reads his papers and that Russell belongs to the elite few who merit a special place in the history of geology in Africa.

Russell firmly believed that watercolour painting and writing a scientific paper required the same quality of analyses, concentration, rigor and conciseness. He was subtle and discreet; a man of few words. He even had the talent to communicate in silence. An imperceptible shift in his body-language, something in his expression, let one know his approval or disapproval. There is a consensus amongst all those that knew him that Russell gave a unique stimulus to research on African geology. He was a very kind sincere man, above the fray, and generated great advances in the knowledge of the geology of Africa, a continent ever close to his heart.

Jean-Paul Liégeois, Royal Museum for Central Africa, Tervuren, Belgium

Aberra Mogessie, President of the Geological Society of Africa, University of Graz, Austria

Asfawossen Asrat, V. President of the Geological Society of Africa, Addis Ababa University, Ethiopia

Metasebia Demissie, Geo-information & Landscape Gardening, Addis Ababa, Ethiopia

Peter Bowden, past Editor in Chief of the Journal of African Earth Sciences, University Saint Etienne.

Bernard Bonin, Orsay-Paris Sud University, France

Some selected publications of Russell Black in chronological order:

- Jacobson, R.R.E., MacLeod, W.N. and Black, R., 1958. Ring complexes in the Younger granite Province of Northern Nigeria. *Mem. Geol. Soc. Lond.*, 1, 72 pp.
- Black, R., 1963. Note sur les complexes annulaires de Tchoumi-Zarniski et de Gouré Niger. *Bull. Bur. Rech. Géol. Min.* 1: 31–45.
- Black, R., 1965. Sur la signification pétrogénétique de la découverte d'anorthosites associées aux complexes annulaires subvolcaniques du Niger. *C. R. Acad. Sci. Paris*, 260: 5829–5832.
- Black, R., 1966. Sur l'existence d'une orogénie riphéenne en Afrique occidentale. *C. R. Acad. Sci. Paris*, 262: 1046–1049.
- Black, R., 1967. Sur l'ordonnance des chaînes métamorphiques en Afrique occidentale. *Chronique des Mines*, 364: 225–238.
- Black, R., Joujou, M. and Pellaton, C., 1967. Notice explicative de la carte géologique au 1:500,000ième de l'Aïr-République du Niger. *Dir. Mines Géol.*, Niamey, 52pp.
- Black, R. and Girod, M., 1970. Late Palaeozoic to Recent igneous activity in West Africa and its relationship to basement structure. In: T.N. Clifford and I.G. Gass-Eds., *African magmatism and tectonics*, Oliver and Boyd, Edinburgh, pp. 185–210.
- Black, R., Morton, W.H., Rex, D.C. and Shackleton, R.M., 1972. Sur la découverte en Afar -Ethiopie d'un granite hyperalcalin miocène: le massif de Limmo. *C. R. Acad. Sci. Paris*, 274: 1453–1456.
- Black, R., Morton, W.H. and Varet, J., 1972. New data on Afar tectonics, Ethiopia. *Nature*, 240: 170–173.
- Black, R., Morton, W.H. and Rex, D.C., 1975. Crustal attenuation in Afar. In: A. Pilger and A. Rösler, Eds., *Afar depression of Ethiopia*, Schweizerbart'sche Verlagsbunndchhandlung, 1, 55–65, one map included.
- Black, R., 1978. Propos sur le Pan-Africain. *Bull. Soc. Géol. Fr.*, 20, 843–850.
- Black, R., Caby, R., Moussine-Pouchkine, A., Bayer, R., Bertrand, J.M.L., Boullier, A.M., Fabre, J., Lesquer, A., 1979. Evidence for late Precambrian plate tectonics in West Africa. *Nature*, 278: 223–227.
- Fabre, J., Black, R., Caby, R., Leblanc, M. and Lesquer, A., 1982. Carte géologique et gravimétrique de l'Adrar des Iforas au 1:500000ième Ministère de l'Énergie et des Mines, Direction Nationale de la Géologie et des Mines, République du Mali, Bamako.
- Liégeois, J.P., Bertrand, H., Black, R., Caby, R. and Fabre, J., 1983. Permian alkaline undersaturated and carbonatite province and rifting along the West African craton. *Nature*, 305: 42–43.
- Black, R., Lameyre, J. and Bonin, B., 1985. The structural setting of alkaline complexes. *J. Afr. Earth Sci.*, 3: 5–16.
- Ba, H., Black, R., Benziane, B., Diombana, D., Hascoet-Fender, J., Bonin, B., Fabre, J. and Liégeois J.P., 1985. La province des complexes annulaires alcalins sursaturés de l'Adrar des Iforas, Mali. *J. Afr. Earth Sci.*, 3: 123–142.

- Liégeois, J.-P. and Black, R., 1987. Alkaline magmatism subsequent to collision in the Pan-African belt of the Adrar des Iforas. In: J.G. Fitton and B.G.J. Upton-Editors, Alkaline igneous rocks, The Geological Society, Blackwell Scientific Publications, 381–401.
- Liégeois, J.P., Sauvage, J.F. and Black, R., 1991. The Permo-Jurassic alkaline province of Tadhak, Mali: geology, geochronology and tectonic significance. *Lithos*, 27: 95–105.
- Black, R. and Liégeois, J.-P., 1993. Cratons, mobile belts, alkaline rocks and continental lithospheric mantle: the Pan-African testimony. *J. Geol. Soc. London*, 150: 89–98.
- Liégeois, J.P., Black, R., Navez, J. and Latouche, L., 1994. Early and late Pan-African orogenies in the Air assembly of terranes Tuareg shield, Niger. *Precamb. Res.*, 67: 59–88.
- Black, R., Latouche, L., Liégeois, J.P., Caby, R. and Bertrand, J.M., 1994. Pan-African displaced terranes in the Tuareg shield-central Sahara. *Geology*, 22: 641–644.
- Liégeois, J.P., Navez, J., Hertogen, J. and Black, R., 1998. Contrasting origin of post-collisional high-K calc-alkaline and shoshonitic versus alkaline and peralkaline granitoids. The use of sliding normalization. *Lithos*, 45: 1-28.
- Navez J., Liégeois J.P., Latouche, L. and Black R., 1999. The Palaeoproterozoic Tchilit exotic terrane (Air, Niger) within the Pan-African collage of the Tuareg shield. *Journal of the Geological Society of London*, 156: 247-259.

In early 2009, the last five papers of Russell Black have generated 350 citations in the ISI web of knowledge and, although all being more than 10 years old, they generated 30 citations in 2008.

A special issue of Lithos on the "Post-Collisional magmatism" was dedicated to Russell Black in 1998; it grouped 27 articles for 560 pages.

In January 2011, a special session called "What is the Pan-African orogeny? What are the relationships of alkaline ring complexes to orogenies? A tribute to Russell Black" will be organized at the 23rd Colloquium on African Geology, organized in Johannesburg, South Africa and a special issue on the same theme will be organized for publication in the Journal of African Earth Sciences, a journal for which Russell Black was member of the editorial board for many years.



Fig. 1: Russell Black in Air Mountains (Niger) in 1990.



Fig. 2: Waterpainting painted by Russell Black in 1961. It represents the Agadez town in Niger. 26x33 cm.