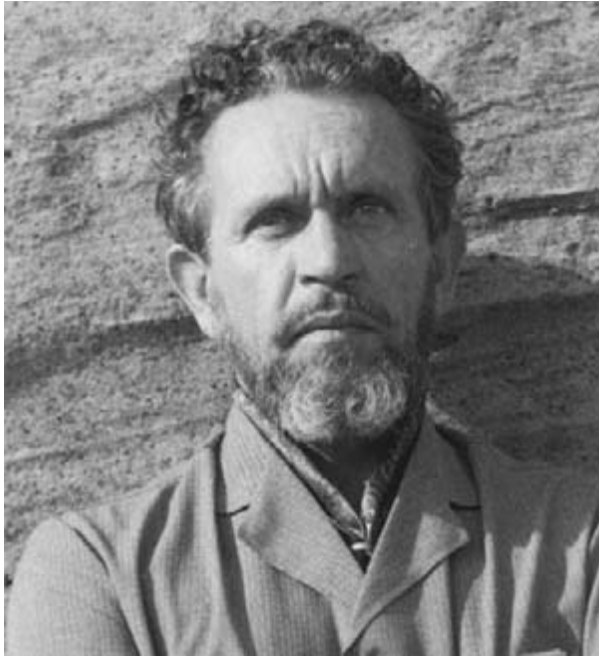


A Zig-zag career

Ronald Strahan

Councillor of the RZS

(Based on an address to the 2001 annual conference of the Australian Mammal Society, Brisbane, on the occasion of his being appointed a "treasure" of the Society)



Ron Strahan at mid-life.

I grew up in Maylands, a working-class suburb of Perth, and attended the local primary school. The next step was three years of junior secondary education at Perth Boys High School (to the Junior Certificate) but only two of us, from a cohort of about seventy, made it that far. Two further years of study could lead to the Leaving Certificate (effectively matriculation) but Perth Boys, the largest high school in the State, did not cater for this level. It was the time of the Great Depression and almost every boy in the public system left school at the age of fourteen or earlier.

So, still in short pants, I was launched onto the labour market at the end of 1937, having topped final year in English and come equal first in Science. I had dreamed of a career in science but it was pointed out to me that this involved university study and that even though the University of Western Australia was free, this was out of the question. In any case, my teachers convinced that my future lay in the printed word, took action to launch me in this direction and I found myself applying successfully for a cadetship in the prestigious "West Australian" newspaper.

However, it turned out that I had gone through school a little too rapidly and was a year too young to take up the position. I was advised to take up another job for the time being, so I became Office Boy in the University.

One day, I heard that a cadet in the Chemistry Department had been arrested on charges of theft and robbery. Within an hour, I was across the desk of the Professor of Chemistry, convincing him that I was the replacement that he needed. It was a little harder to convince my mother that a drop in

income from one pound a week to fifteen shillings was in my best interests. I had one day off a week to attend Perth Technical College and, by taking classes every night of the week, I was able to matriculate in two years. This left me with the prospect of six or more years of equally intense part-time study to obtain a degree. I started on this grind and, as a result of war time staff shortages, was promoted to Laboratory Manager at the age of eighteen. It was a heavy load, from which I was rescued by a Commonwealth Scholarship in 1942 I was now able to concentrate on my favourite science, zoology.

In 1943 I took a Long Vacation position in the Waite Agricultural Research Institute, Adelaide, working in the team of Andrewartha and Birch on the eco-physiology of the Rice Weevil. While I was there, I met (Colonel) Francis Ratcliffe who had given up his ecological researches to be wartime head of all matters concerning the insect vectors of tropical diseases affecting the Army: he invited me to join a three-man Mobile Entomological Research Unit that he was about to create. It would comprise a Driver-Batman, a Staff-Sergeant (me) and a Major (Dave Atherton, Assistant Director of the Queensland Department of Agriculture). Our function would be to come in on the heels of an invading force, identify the local vectors of malaria, and dengue fever, and produce a plan for their control. This may sound unreal -and it probably was - but the Army was suffering far more casualties from these diseases than from combat with the Japanese.

Ratcliffe was not an entomologist, neither were Atherton nor I, but this was a time when zoologists were expected to be able to turn their hands to any animal problem. I attended a quick course in mosquito identification at Queensland University. A number of chaps put in charge of Malaria Control Units did the same course but it was largely irrelevant. Wherever the Army went, we sprayed diesel oil on all standing water, killing most of the resident mosquito larvae, no matter what the species. Once we had DDT, we sprayed that everywhere. I once held in my hand 250g of DDT (all we had in Australia at the time) and I realised that I could forget about mosquitoes and concentrate on learning how to deliver this stuff from the air with a couple of superannated Beaufort Bombers that we had been given to play with.

Malaria and dengue were beaten by chemistry. DDT blasted every type of mosquito - and just about every other insect. Atebrin, administered to every Australian serviceman in the tropics, cured or suppressed malarial infections from mosquitoes what slipped past the DDT barrier. There remained only one significant arthropod-borne disease: scrub typhus or tsutsigamushi fever, carried by the larvae of trombiculid mites. Only one person in Australia, Hubert Womersley in the South Australian Museum, knew how to identify these creatures, so I was sent to him for six weeks to get a grounding in the field. I returned as the Army's only trombiculologist but with little use for my knowledge. Others had discovered

that dibutyl phthalate - an oily substance related to the mosquito repellent, dimethyl phthalate, was an excellent mite repellent and, if rubbed into blankets and uniforms, remained effective through a number of washes.

The Mobile Entomological Research Unit went through its planned motions in the invasion of Balikpapan, Borneo, following the infantry ashore on the second day, but we reached no conclusions and made no recommendations. Within a week or so I was transferred to a Malaria Control Unit, spraying a designated area with diesel and DDT - an activity that was not intellectually demanding.

Prior to the invasion of Borneo, the Unit was located in the Atherton Tableland, where I had my first contact with native mammals. Ratcliffe had sent Ellis Troughton there to trap native mammals from which Frank Fenner (yet to become famous) took blood samples to check for transmissible diseases and I collected ticks and fleas for identification. It turned out that most of the fleas were undescribed, so I made up a private collection of these (and others that I collected in Morotai and Borneo) with a view to a thesis project on my return to academia. However, on the day before I flew back to Australia my kitbag was stolen and this career path was closed off.

I returned to university and completed my degree, majoring in Entomology and Zoology. For my Honours thesis, I studied the anatomy and metamorphosis of an Australian lamprey *Geotria australis*, of which little was known other than that it had an extraordinarily well developed pineal eye and (in the mature male) a scrotum-like sac under the throat. It was a fascinating animal, packed with clues to the structure and function of the earliest vertebrates.

About halfway through my Honours year, Horace Waring arrived as the new Professor of Zoology. He was a bombshell who revolutionised the course content and set me a monumental reading list in an attempt to drag me from the nineteenth into the twentieth century. He loudly proclaimed that he had come to Australia to work on Australian mammals because the bloody Australians weren't interested in them: and he was right. Apart from some comparative anatomy, embryology and taxonomy, the biology of marsupials and monotremes was a closed book.

It took a little while for Harry to organise his attack, so I missed being the first of his mammalogists. Instead, he gave me the task of working out the blood pressure responses of the domestic fowl to neurohypophyseal hormones - more an exercise in pharmacology than zoology but aimed at training me in experimental design. I came up with a fine explanatory theory based on pooling of blood in various organs and had no difficulty with my thesis examiners in Australia or Britain.

It was, however, faulty: several years after me, Pat Woolley provided a far better explanation in terms of the stimulation and blocking of receptors.

By then, I had obtained a Hackett Studentship to Lincoln College, Oxford, where I began research on frog metamorphosis, on the hypothesis that neurohypophyseal hormones play a part in the process. I failed to demonstrate this, not least because I had great difficulty in breeding my experimental animal, *Xenopus*, the Clawed Toad. After a year with no significant results, I looked around for another field and obtained a Nuffield grant to work in a team of zoologists studying neurotropic viruses (such as rabies and poliomyelitis) that migrate along mammalian nerve fibres and reproduce in the cell bodies. Things went well and I was able to work out the reproductive cycle of

murine encephalomyocarditis. Nuffield was pleased with our progress and decided that the five team-members should be transferred to the Institute for Medical Research in London, with the option of becoming salaried public servants.

That was not good news. I had no great objection to a government salary but the prospect of working in a medical institution without the armour of a medical degree was most frightening: even when they had come to our team to learn our techniques and philosophy, medicos had found it difficult to regard us as equals. So I went to the departmental notice board, saw that the University of Hong Kong wanted a Lecturer in Zoology, and applied for the position.

The Zoology Department, which had been sacked during the war, was not very well equipped, so I undertook research that needed little gear. I worked for a while on the water relations of a local toad, *Bufo melanostictus*, and its tolerance of saline water, which could explain its prevalence on offshore islands - in contrast to the local newts which appeared to have a distinct population on each island.

I was struck by the number of Hong Kong cats with short or kinked tails and read that this deformity was found from South-east Asia to Japan but with a peak in South China. I made a study of the vertebral column of the dozens of stray cats that were euthanased by the RSPCA each week and found that deformed tails were only the outward sign of internal aberrations - hemivertebrae, cervical and abdominal ribs, and variation in the number of precaudal vertebrae. The situation called for some genetic analysis and the University could provide ample accommodation for a good number of cats. With guidance from E.B. Ford in Oxford and J.B.S. Haldane in London, I mapped out a breeding strategy that should throw some light on the genetics of the condition but came up against an immovable obstacle: the RSPCA would provide me with as many dead cats as I required (cats that they had killed) but no live animals from which to breed. That, in their view, was vivisection. Another dead end.

My friend, A.J. (Jock) Marshall had undertaken to revise Parker and Haswell's "Textbook of Zoology" and asked me to handle the chapter on the Agnatha (lampreys, hagfishes and fossil ostracoderms. Embarking on a review of the literature on hagfishes, I soon found out that much of it was scrappy, contradictory and ancient. So I spent my first sabbatical at the Swedish Academy of Science's marine laboratory at Kristineberg, where hagfishes could be kept alive and underwater television could be employed to watch their in their deep-water habitat. Hagfishes are the most repulsive of vertebrates but they are fascinating relics (together with lampreys) of those that dominated the oceans in the Silurian. I studied a range of aspects of their life, from behaviour to anatomy, physiology and anatomy, in several visits to Sweden and in shorter periods in Japan, California and England.

By 1961, when I returned to Australia to take up a Senior Lectureship in the University of New South Wales, I had some reputation for my work on living agnathans, particularly hagfishes, but none of these were known from Australian waters (I later described a very rare species from South Australia and a New Zealand species that had been trawled off New South Wales).

On the other hand, there was an interesting lamprey on the south-east coast, as different from the western genus as each is from the Northern Hemisphere lampreys.

I set up a small lamprey research group which was quite productive, both in publications and personnel: Professors

Ian Potter (Murdoch) and Jean Joss (Macquarie) came from that team. Our status is perhaps indicated by my authorship of "Agnatha" in the Encyclopaedia Britannica and an invitation from the University of Stockholm to be Visiting Professor in 1968.

From the first week of my return to Australia I had been involved with the ABC in educational TV and public affairs radio, so I became well known as a voice for zoology. Probably because of this, I was nominated by the Royal Zoological Society of New South Wales to the Taronga Zoological Park Trust, governing body of Sydney's zoo. Following a change in State Government, the zoo was under critical scrutiny and two reports drew attention to its shortcomings under the long and idiosyncratic direction of the millionaire Sir Edward Hallstrom. Author of the report on zoological aspects of Taronga was Prof. Heini Hediger, ethologist and Director of Zurich Zoo. He put great pressure on me to apply for the directorship and, feeling that 30 years in universities might be enough, I finally gave in - to discover that the Vice-Chancellor and the Minister for Lands had already agreed on the terms of my transfer to the Public Service.

I knew very little about zoos and I disliked most of that. This was an advantage, for it gave me the opportunity to develop a philosophy from first principles. I gave notice to my colleagues in Melbourne, Adelaide and Perth that I was going to lead a revolution on the manifesto that zoological gardens are for zoology and that this meant fundamental involvement in education, research and, where possible, conservation: there was no place for circuses, miniature trains or roundabouts.

It wasn't easy but, after seven years, I could claim moderate success. I had made Taronga Zoo a respectable cultural-scientific institution and I'd had the opportunity to implement my design policies in the creation of the large Western Plains Zoo at Dubbo. The other State zoos had also become more zoological and now paid more than lip service to their responsibilities in education and research. My position in regard to the administration of Taronga remained much the same: most of the members of the governing body were Hallstrom-supporters and, since I disapproved of almost everything that Hallstrom had done, my relationship with them was usually strained. Eventually my health broke down. Not for the first time in my life, other people organised my next move and I came out of hospital ready to take up the position of Research Fellow in the Australian Museum. The job description, "to do such things as shall bring credit to the Museum", was remarkably simple and extremely demanding.

What does a Research Fellow do? Over the previous seven years I'd written papers on breeding times of mammals translocated from one hemisphere to the other, courtship of the Platypus, conservation of the koala, juvenile dentition of the Common Wombat, and taxonomy of hagfishes. Projects that I had been considering were a monograph on the evolution of the pancreas, and the functional anatomy of the "two-thumbed" hand of the Koala and pseudocheirid possums. My zoo experience had left me with a feeling of a need for a new book on Australian mammals but I put that aside. As it happened, I had barely started on the pancreas and marsupial anatomy when I was loaded with a completely different means of bringing credit to the Museum.

A travelling exhibition on primate evolution was required and it was made my responsibility on the grounds that I had less ongoing duties than the Curators: that took about a year. Then it was realised that the Museum's

sesquicentenary was only a few years away and a history of the institution was needed. Would I be the editor? I complied and eventually wrote two-thirds of the book: another four to five years.

Somewhere in this period, I drifted into responsibility for what became the Museum's National Photographic Index of Australian Wildlife, with documented photographs of every species and form of tetrapod vertebrate, beginning with the mammals. We needed a checklist but the most recent one had been published in 1964. I took on the job of updating it to subspecific level and so we had an ex-ichthyologist pontificating on matters mammalogical. My list went through three revisions and, to my surprise, it was accepted as gospel by wildlife authorities and academics. That occupied another year or so, bringing us to 1980, when the Mammal Society endorsed a list of recommended common names brought down by a committee that I had chaired.

Getting caught up with history and names awoke that part of my brain concerned with language. I was upset by my colleagues who referred to themselves as mam-ol-o-gists, working on sude-oh-meez, den-drol-ag-us, or mak-rope-us. So I wrote "A Dictionary of Australian Mammal Names".

In 1978, I had been invited to revise Ellis Troughton's "Furred Animals of Australia". I made a start on this but soon realised that - as David Ride had demonstrated by default in "A Guide to the Native Animals of Australia" (1970) - the field was now too wide to be covered by a single author. It could have been tackled by half a dozen senior authors but I thought it better to put the treatment of each species in the hands of a person with direct field experience of it, leaving a small team of senior mammalogists to edit the species accounts. I left to myself the tasks of obtaining uniformity of style and discussion at the supraspecific categories.

The result is a remarkably democratic reference book, with a hundred or so contributors to the first edition and about a hundred and fifty in the second. I am proud to have guided this team.

But what of the Research Fellow? I'd made a few contributions to the biology of the Koala and the Musky Rat kangaroo and I'd bought into arguments about ranking endangered species in terms of priority for conservation effort. It was not much. Around 1982, I cornered the Director, Desmond Griffin, at one of the highly alcoholic parties that used to be the life-blood of the Australian Museum and confessed to him that I had lost faith - or interest - in my ability to conduct significant research and that I functioned better as synthesiser, coordinating and evaluating other people's work. His response was typical, "You want it, you do it". So I became Executive Officer of the National Photographic Index of Australian Wildlife, then Editor-in-Chief, responsible, in addition to the works already mentioned, for eight volumes of "Birds of Australia", four volumes of "Encyclopedia of Australian Animals", four Field Guides and a talking book, "What Bird Call is That?" In retirement, I have written a book of verses on Australian mammals, illustrated by my partner, Pamela Conder, and I am compiling a dictionary of Australian and New Guinean mammals.

When I was fourteen, I had to choose between science and writing. I have, in the end, enjoyed both.

[Editor's note: Ron Strahan's letterhead summarises some of the milestones in a zig-zag career - Ronald Strahan, AM, DSc, FAIBiol, FRZS, FANZAAS.]