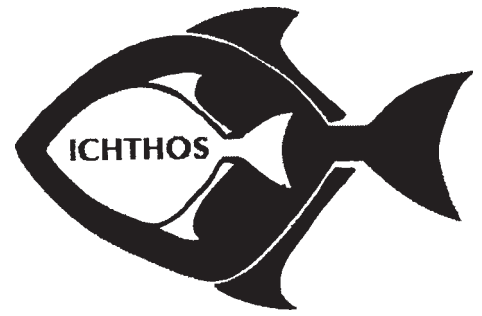


ICHTHOS



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RSSA Essay Competition Prizewinner visits Eastern Cape

Gail Pullen, JLBSI

The annual Royal Society of South Africa (RSSA) Essay Competition was held during the course of March to June this year. Entrants had a selection of three topics to choose from: what is the most interesting discovery scientists have made in the past millennium; describing the importance of colour in nature; how indigenous plants and traditional healing can contribute to South Africa's health and wealth.

Out of a total of 135 entries this year, two primary school and two senior school pupils were selected as first prize winners. These were Gadijah Waggie (Grade 6), of Plantation Primary in Grassy Park, who wrote an essay on the discovery of Insulin; Linza Aspinall (Grade 5), of Laerskool Lynnwood, who chose the subject 'Control and Hope' about medical discoveries; Robbie Sarracino (Grade 11), of St John's College, who wrote on Galileo's contributions to modern science; and Daniela Faris (Grade 10), of St Mary's DSG in Pretoria who chose the topic on scientific discoveries and submitted an excellent essay on cloning. A number of book prizes and certificates of merit were also awarded.

As one of the four National Facilities in South Africa, the JLB Smith Institute of Ichthyology (JLBSI) sponsored one of the prizes and during mid-October 1999 entertained Daniela Faris on a three day, two night, visit to the Eastern Cape. Included in the itinerary was: a visit to Bayworld in Port Elizabeth for a tour of their facilities and aquariums; a visit to the Rhodes University Electron Microscopy Unit and Microbiology Department; briefing sessions with the scientists of the JLBSI and a tour of the Institute's facilities and National Fish Collection. Daniela also participated in an exciting overnight estuarine field trip on the banks of the Kariega River. She explored first-hand some practical aspects of ichthyology in as-



Daniela Faris taking water samples on a field trip to the Kariega River

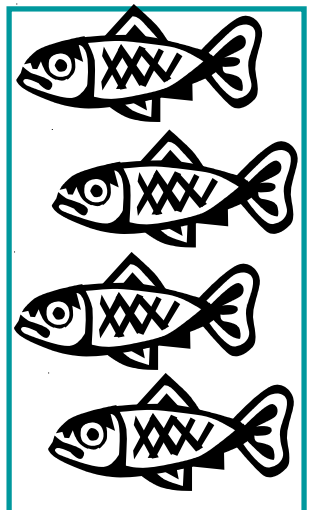
sisting with the collection of water samples for research purposes and was thrilled by a moonlight boat cruise to watch the fish jumping out of the water.

Asked about her impressions during her visit, Daniela said: "My eyes were really opened and I never realised that science could be so exciting. This visit has certainly given me a different perspective". She said that she was also struck by how passionate the people in the Eastern Cape are about their research and the work they do.

Although she had previously decided on a career in human resources, Daniela is now overwhelmed at the possibilities open to her. She fell in love with the old settler architecture of both Port Elizabeth and Grahamstown and is keen to study further at Rhodes University when she finishes her schooling at St Mary's DSG.

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Why are white musselcrackers found in estuaries ?

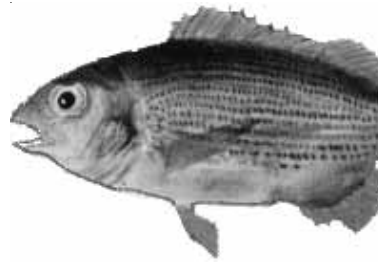
Dr Alan Whitfield, JLBSI of Ichthyology

The white musselcracker (*Sparodon durbanensis*) is an endemic fish species - in other words it is found only in southern African coastal waters (in this case from the Western Cape to KwaZulu-Natal). The older generation of shore anglers (mostly retired!) will remember fishing for musselcracker in the vicinity of rocky reefs and actually catching them on a fairly regular basis. Unfortunately, like so many of our other reef fishes, this species has been heavily over-exploited and is now rarely caught by land-based anglers.

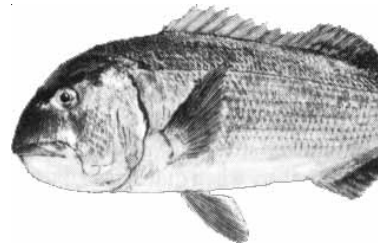
The white musselcracker is listed in Smiths' Sea Fishes as a marine species which 'rarely enters estuaries'. The early juveniles frequent tide pools but scientists at the JLB Smith Institute have also found them in estuaries, especially in association with eelgrass beds or rocky reefs near the mouths of these systems. Regular sampling by estuarine ichthyologists has failed to turn up any adults and the general consensus was that specimens larger than a few centimetres in length are not associated with estuaries.

On a recent trip to the Wild Coast I was shown numerous photographs of large white musselcracker (known as silver steenbras by the locals) which had been speared just inside the mouth of a small estuary near Coffee Bay. According to residents, shoals of these fish occasionally gather in the estuary mouth area after dark. This behaviour is most common during late winter and early spring, often coinciding with the onset of a new moon. I was informed that none of these fish feed in the estuary and that they would remain stationary in the shallow water for long periods, some with their backs actually protruding above the water surface. Once they are disturbed, the water 'boils' as the shoal of fish dash towards the open sea. This unusual behaviour by white musselcracker in the area was first dis-

A juvenile white musselcracker (*Sparodon durbanensis*) - the fins and posterior parts of the body are a vivid orange colour.



An adult white musselcracker - all orange colouration has been lost and when alive the fish has a bluish glow in the water. Note also the change in shape of the head when compared to the juvenile stage.



covered at the turn of the century and the locals have used it to their benefit ever since, often spearing more than 10 fish in an evening. It was interesting to note that this 'fishing' activity still continues, in spite of the fact that the stock is over-exploited and the use of a light to spear fish at night is illegal.

I was then asked a very interesting question on the above observations - 'Why do these musselcracker come into the estuary and what are they doing hovering in the shallow water?' My reply was that this shoaling behaviour is perhaps a pre-spawning aggregation of individuals from adjacent reefs - adults of this species are usually solitary except at breeding time. Evidence to support this view is that

spawning usually occurs during winter and spring along the Cape coast, the same time that these fish are normally observed shoaling in the above estuary. One of the locals had an interesting hypothesis - he suggested that the fish were trying to get rid of marine parasites in the river water. However, this is unlikely because the musselcracker remain in the mouth region of the estuary where salinities are the same or very similar to full seawater. Are there any further suggestions from our Ichthos readers on this unusual behaviour and has anyone out there noted similar gatherings of musselcracker in other South African estuaries?



Seeking a Life of Adventure

Pat Long

My association with JLB and Margaret Smith started in about 1950 when my mother invited Mrs Smith to address the Commemoration Methodist Women’s Auxiliary on her life as an ichthyologist. Hearing what was in the offing, I begged to be allowed to come, as what I’d heard or read about Mrs Smith’s life sounded so exciting. I was an avid reader and was always hoping that my life could be as adventurous as that of my fictional heroes. Here was a chance to meet the great Mrs Smith, offer to work for her and one day be invited to go on an adventure to Mozambique looking for fish.

Although I was only 14 at the time, Mrs Smith graciously accepted my enthusiastic offer, so whenever I could – after school and during the holidays, I worked at the Ichthyology Department. I kept this up for years, right until I was a student at Rhodes from 1957 to 1959, with enforced breaks when my parents moved to Kimberley and I had to go home for the holidays.

Mrs Smith was a good and patient teacher, and taught me to develop and print photographs of fish which I then had to paint with special photographic paints. This was extremely difficult, as the colours changed when applied to the prints and they went on all patchy: really not a satisfactory way of keeping a record of fish colours. Today with colour photography it would have been a lot easier, but then the processing would have been beyond the facilities we had in those days.

Another job I did was to file letters. This was very interesting, as the correspondents were from all over the world. The letters that especially interested me were those from (I think) the Emperor of Japan who was an *amateur ichthyologist*. The Professor (as we called him) was interested in all sorts of things not concerned with fish, and I remember one letter he wrote to the trainer/coach of the Springbok rugby team, advocating some method of play that he thought would improve their chances of success.

The deadliest job, though not as bad as it sounds, was typing fish catalogue cards. Along the top I had to put the fish’s number. As far as I can remember, this consisted of four numbers: dorsal spines followed by dorsal rays

and then anal spines followed by anal rays e.g. 11 14 3 12. Then the Latin names, etc. It seemed to me that every species had a unique number, and I got quite good at predicting which species went with which number, especially the eels!

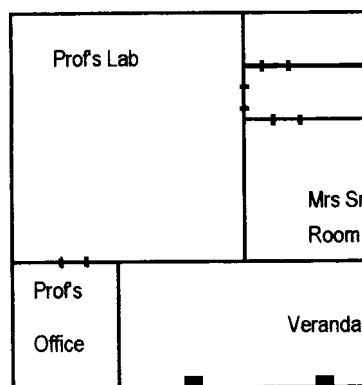
The building was very old and had internal partitions that didn’t go up to the ceiling throughout the building. The dark room and the store room where all the preserved specimens were kept in labelled bottles had normal walls, but in the rest of the main section, the partitions were about two metres high. This meant that every sound travelled through the building. The Professor’s laboratory and office were at the far left end. If he wanted someone, he just shouted and someone would come running. The rows he had with William, when the latter was a student, I will not repeat. Mrs Smith worked in the second room to the left after the reception office and her windows faced on to Artillery Road.

Here follows a sketch of how I remember the Department, but as I last worked there over 40 years ago, I have forgotten much in the intervening years and there are probably many inaccuracies.

Across the short passage from Mrs Smith’s door, on the right before the Prof’s laboratory, was a little room. For a short while, a beautiful girl called Felicity Mather-Pike worked in this room. When she was shown her workplace, she asked Mrs Smith if she could pretty it up a bit, as she found the stark white not to her liking. Felicity and her current boyfriend spent the weekend painting the cupboards red and white and putting up pretty curtains

with a pattern to match. On the next work day, we all held our breath, but nothing happened for a few days. Then came a day when the Prof had to go into Felicity’s room for something. “This is a scientific research laboratory, not a lady’s boudoir” he stormed at the top of his voice. “Who gave you permission to paint this room? And can I smell perfume?” Felicity’s replies were inaudible and what the outcome of the Prof’s rage was, I can’t remember, but I certainly quaked in my shoes that day. And yet he was always unfailingly kind to me and I had no fear of him. Provided one did one’s best and didn’t do anything silly, he was tolerant. I realised he was also a caring person when one day I had a terrible pain in my insides. We had to use the toilets in the next door building, and I was there writhing in agony when he came in. He was most concerned and asked what I’d eaten for breakfast. (He was quite fanatical about diet and said one should never eat protein and carbohydrate at the same meal). When he was sure my pain wasn’t life-threatening, he said I should go home, which I did - on my bicycle. Some of the respectful fear people had for the Prof was instilled in them by Mrs Smith. She would say, “The Professor wouldn’t like.....; the Professor likes.....; the Professor gets angry when.....;” and so we learnt to be careful and keep out of his way and treat him with the utmost respect.

At the entrance door was the secretary’s office. I remember a young woman with red hair who worked there; a Miss Smith - no relation. (I can’t remem-



A Plan Sketch of the way I remember the Department of Ichthyology, possibly inaccurate.

Seeking a life of Adventure ... (cont.)

ber her first name and also wonder if her birthday was 26 Sept.) Mrs Smith had cause to go to her flat one day and on Miss Smith's door a label said "Just another Smith". Mrs Smith was quite annoyed and said it was a name to be proud of.

William said once to his mother that he hoped when he grew up that he'd find a nice girl to marry who was born on his birthday, as he thought one had to marry someone who shared one's birthday like his parents did. The fact that my birthday is also on 26 September was a strange coincidence.

I was paid a shilling a day as a school-girl, and at the end of the holidays the Prof would call me into his office to pay me. One pay day he asked me what I intended to do with the money and seemed surprised when I said I was going to buy as many Mozambique fish stamps as the money would allow. I was so proud of those stamps because the Smiths were instrumental in getting the Mozambique government to issue them.

Mrs Smith taught herself to do square pen lettering, and she was often to be found lettering neat inscriptions on the flyleaf of copies of "The Sea Fishes" for presentation to VIPs, special friends, etc. One never talks to people doing lettering in case they make a mistake, but one day I felt I had to say something when she was writing Setembra (or something like that) in a copy of the book for presenting to some Portuguese/Mozambican official. "You've left out the P in September", I said. "No," she said, "that's how it's spelt in Portuguese." And then she told me how she'd taught herself Portuguese which she needed in order to communicate with fishermen and officials in Mozambique. Every day she would write out 10 Portuguese words with their meanings on a piece of paper which she stuck on the wall next to the toilet. Thus time which had to be spent in that little room could be put to good use!

Watching Mrs Smith draw fish, using the finest of nibs and black waterproof ink, was fascinating. She was extremely accurate, and measured every single scale precisely and scaled it down to whatever size was required. The "Sea Fishes" dominated the atmosphere of the building, and there was always a new edition or revision in progress. Everyone worked hard and conscientiously and there were few mo-



Pat Long (nee Edmonds) approx. 1955.

ments of light relief.

She told me stories about their times in Mozambique. Dynamiting fish shocked me - I thought it was so cruel and lacking precision: one could so easily kill a whole lot of fish one didn't want. She said how she had to sit in a rocking boat in the hot sun making colour notes as fast as she could because the colours faded so quickly. In later years when she went diving, she said it was the greatest thrill of her life - to see those familiar friends in all their glorious unfading colours. I think she got more out of diving than any other enthusiast.

She told me horrific stories of the stone fish and its cryptic camouflage and how boiling water was the only cure. She described how the Professor had touched one and what a terrible time he'd had. To me the cure sounded worse than the cause!

One Saturday I was in Port Alfred with a friend and we found a dead shark on the beach. I wanted to take it back to the department, but my companion was very reluctant to put the decidedly nifty creature in his boot. When I told Mrs Smith on Monday, she was very disappointed and said I should have brought it. I thought the Smiths' interest lay with the bony fishes, but she said they were studying the cartilaginous fish too. This led to another little job for me. My parents had moved from Kimberley to Durban and Mrs Smith told me to research every shark attack reported in the newspaper. I spent the next holidays in the Mercury's newspaper files room, trying to catalogue

features of the reported shark attacks: date, time, turbidity or clarity of water, sex of victim, depth of water, description of wounds, species of shark, etc., but found that newspaper reporters weren't scientists, and the information Mrs Smith wanted wasn't usually given.

Mrs Smith had a rich and throaty voice and said she was very interested in music (I was a music student) and would love to sing in a choir, but she had devoted her life to helping the Professor with his work and wouldn't do anything which took her away from that. She knew how to project her voice and told me how she could call the Professor or fishermen across large stretches of water in Mozambique and make herself heard without shouting.

The Smiths had a house in Gilbert Street which I think was painted blue. The side of the house furthest from the street faced a quarry, and the Prof was afraid of flying rocks damaging his walls, so the whole side was faced with corrugated iron. People thought this was an expression of the Prof's eccentricity, but it looked sensible to me.

Stories of the Smiths used to go around Grahamstown. The two of them walked great distances - and always walked to work. One day a section of the pine forests planted on the surrounding hills were burning fiercely and many people turned up to watch and help. The Smiths were there on one of their walks, and someone said to them, "Why don't you help?" "Oh no," said Mrs Smith, "we're saving our hands for science." The story is probably apocryphal, but is the sort of thing they would say.

Mrs Smith told me that as a child, William wasn't allowed toys. Boxes, blocks, wood, string, nails, tools, etc. were permitted, but no ready-made toys from a shop. He certainly wasn't a deprived child though, and when he was older, he rigged up a working telephone between their house and the Hewson's house down the road so his mother and Mary Hewson could chat without using the GPO lines.

I never got to join an adventurous fishing expedition to Mozambique or anywhere else for that matter, but I nevertheless enjoyed working for the Smiths and consider it a privilege to have known them and worked for them, even in such a minor capacity.

A Remembrance: JLB and Margaret Smith

Glyn Hewson

We came to live in Gilbert Street, in the precincts of Rhodes University, on 1 March 1951: a cracking hot day which ended in a huge thunderstorm. Within weeks we were off overseas to the UK for the rest of the year. On our return, right next door to us, built at the bottom of the huge garden belonging to Miss Tidmarsh and Miss Sleading, was an ascetically simple double-storied house, the new home of the Smiths.

As I have realised in my later years, living in that university environment during my growing up years was an extraordinary privilege. The academic terms brought floods of students and a strong sense of exuberant vitality born of all the activities from Rag to rugby, political processions and meetings, lectures, examinations to the gala occasions, such as graduation and garden parties. I saw it from the outside as a child; later, I lived it from the inside as a student.

For me, from those early years on, a central feature was the awareness of, and at times, involvement with, a range of extraordinary people full of colour, brilliance, insight and eccentricity. Griff Ewar was a professor of Zoology with a penchant for Shakespearian acting and an oratorical style of presenting students for higher degrees at graduations with a flamboyance that made their thesis topics sound like current bestsellers. His wife wore suits and smoked a pipe. Angus Holland, in the Divinity Department, knew every significant test cricket score of the previous half century. He also religiously kept his silverware in the fridge. Winifred Maxwell, born within the sound of London's Bow Bells, nevertheless gave her brilliant history lectures in a rich Scots accent through perpetual clouds of cigarette smoke - and was not averse to hiking up gown and skirts to hop on to a lecturing table before shocking multitudes to silence so that she could make a crucial announcement. Dr David Terry always entered the General Lecture Theatre from the back. Tall, saturnine and skeletal, like Count Dracula, with gown clasped around him, before stalking



down the steps through 300 students. At the bottom he would stare down every single one while grinding his jaws until there was total silence.

In this unique community, JLB and Margaret Smith, together with William and their own brilliance and eccentricity, added their own stamp and style. To this 11 year old, JLB was an awesome figure: he seemed to be perpetually in motion, both physically and mentally. Lean, tanned and severe, he and Mrs Smith, no less tanned and strong, *strode* through the streets between the students' residences to their 'Department'; or seemingly ceaselessly across the hills around Grahamstown, through the late light of afternoons, come summer, come winter. I had started doing a lot of cross-country running then and would frequently see them. There was always a smile, always a wave but never a break in the rhythm and purpose of their striding. They were so together.

With the dramatic discovery of the second coelacanth at the end of 1952, it seemed as if the world found special time for Gilbert Street and the Department down the road. Suddenly one morning there was a

TV crew outside on the street; or there would be people knocking on our front door to ask where the Smiths lived. And such was the nature of the relationship between our homes that Margaret Smith thought nothing of asking us to host guests from abroad who had come to see the Smiths or to enquire about some aspect of the coelacanth story. Their house and lifestyle did not easily accommodate such intrusions!

The celebrated palaeontologist, Eigil Nielson, of Copenhagen, was one such visitor who gave an outstanding public lecture on coelacanth fossils of Greenland: Thursday August 6, 1953. Another was the writer and author, Quentin Keynes (a nephew of John Maynard Keynes, so he was quick to tell us!) who arrived *en route* to the Comoro Islands on his first trip and then, on his second, in the company of a young man with dark hair and eyes (the son of Laurence Olivier, so he was again, quick to tell us!)

At one point during these early years, I had a vacation job for two weeks helping Mrs Smith classify and sort the huge numbers of fish which she and her husband brought back from East Africa after each expedition. I have a cherished memory of those hours and hours of not very exciting work made so memorable because she knew so much about so many of those fish. She would chat away with such excitement and humour, lacking information with anecdotes and stories about the expedition that time would totally disappear. I was fascinated by her meticulousness and I had the feeling that there was just nothing which she could not do. I remember her talking about the frenzy when they had just received a whole lot of new fish; or just after there had been a controlled explosion. How fast and accurately she had to work to record colours and details for those masterpieces which she would then create. The consummate artist. Correct down to the last scale.

Both she and JLB were wonderful lecturers. Invariably, after an expedition, there would be the chance to go down to the General Lecture Theatre and hear

A Remembrance ... (cont.)

an enthralling account of months up the East Coast with slides and maps and even displays on view. Margaret was exceptional on these occasions. I will never ever forget her ability to make her fish pop out of her talk and swim in front of you. She would chuckle and chat about them like intimate acquaintances, which of course they were: 'now look at this fellow; what is so special about him is the shape of this fin and the reason for this is of course, that' or 'this little one is so beautiful but don't be misguided, he can be very nasty; if you look closer ...'

I will never ever forget an audience of some 400 people rivetted in silence as she told of JLB's unexpected encounter with the world's deadliest fish: the stone fish. How a man came in one evening with a basket of fish on his head and told them that he had found a stonefish for them; in excitement how the Professor had put his hand up to help take the basket down; and in so doing, how his hand was spiked between thumb and index finger by one of the spines of the stone fish which was sitting on the very top of the pile. How, within seconds, he had crumpled to the ground, where he writhed in agony as he slipped towards a coma. She systematically tried everything she knew but none of the antidotes or injections had any effect. In near panic with rising despair, she filled a syringe with almost boiling water and injected the contents into the puncture.

It saved his life. His recovery was complete except that there was always a slight stiffness in that area of the hand thereafter.

Forty years later I stand entranced with fascination and a certain fear looking through the glass at a stonefish six millimetres from my face in the Two Oceans Aquarium. Syllable by syllable, I hear Margaret's voice telling the story.

Through my school years I frequently visited the old Ichthyology Department. I loved it. Long, white-walled and rambling with a wide verandah and no pretensions at all, it was filled with fascination. I remember the major part of it being a huge long room, like a small hall, subdivided by partitions. Communication was instant; voices merely floated over the top of those divides. Not that there was a lot of chatting. Most communication was fairly direct and to the point, especially

if it emanated from the inner sanctum at the far end of the huge room: the office and work space of the Professor.

Displays, photographs and maps adorned the partition walls - who did all the calligraphy labels and titling - Margaret Smith of course - just yet another talent she had taught herself! Can you have an affection for a distinctly unattractive smell? Certainly! A mere whiff of formalin and I am back there: walking between the shelves of fish steadily sorting, talking over a cup of tea, reading yet another pamphlet or book or press cutting on a display.

Those press cuttings! One of the jobs which I had, as a twelve year old, in the time after the sensation of the coelacanth, was the sorting and compiling of all the news cuttings about the event. I was most intrigued to discover the existence of an organisation called The International Press Cutting Bureau to which the Smiths had obviously subscribed: it provided a seemingly never-ending supply of all the news articles on the coelacanth from all the major newspapers of the world. Each cutting had an attachment at the top with the masthead of the newspaper in facsimile and the appropriate date. There was a note of severity in Margaret Smith's voice when she was talking to me about how they wanted to have the cuttings mounted in the files, 'Remember, Glyn, a cutting without a source is useless to us'

Through days and days I worked at collating, laying out and pasting in, fascinated, *in effect*, by the process of syndication happening in front of my eyes, the editorial complexions and emphases that various newspapers placed and the captions that varied so vividly on essentially the same articles. And of course I read every one. I travelled the world.

Sometimes I had the feeling that Margaret wanted to do nothing but sit and read them all as they came in. She didn't. But she certainly knew the gist of them. She brought some through one morning and said with one of her infectious peals of laughter, 'you must look at this, it's wonderful - the Professor loved it' And of course it was the now celebrated cartoon of the coelacanth addressing a bemused scientist against the background of key events of 1952 (upheavals in Korea, Malaya; the Cold War and Mau Mau) with the acerbic comment, 'If this is the best you do in 50,000,000 years, throw me back.'

Grahamstown still boasts practically the oldest newspaper in the country: *Grocotts Daily Mail* (now known as *Grocotts Mail*),

famous for its little printer's *blapses* here and there, which are intrinsically a part of the character of the publication. Very Grahamstonian. Very eccentric. Everybody wrote letters to the editor and made comments on ranges of issues, including JLB Smith. Especially while on expeditions, we would be regaled with letters detailing the news of what was happening. With their constant focus around JLB, they did not lack egotism and often brought chuckles to my parents as they read about the adventures of 'the intrepid Professor and Mrs Smith...'. On another occasion when Grahamstown had one of its colossal forest fires on Mountain Drive there were a number of people out fighting the fire. JLB wrote about it and commended the effort which had been made, but also commented, 'I contemplated becoming involved, but decided that my hands were more valuable to Science than fighting fires ...'

That's just the way he was: blunt, utterly focussed and unrelentingly prioritised. He had this gift though for stopping at moments and directing a question or a comment because he was interested, because in his own way he cared and made you worth his while. There was a sense of privilege in that. I asked him for a testimonial towards the end of my university career. It was written and delivered the next day: warm, affirmative and insightful. Margaret was that way too: on one occasion she was showing me some of her latest illustrations and I made a comment about sometimes envying the success with which my brother accomplished everything he did. There was a long silence and then she looked at me with those direct blue-grey eyes and said, almost severely, 'would you like to BE your brother?' I knew the answer immediately: No. I never forgot the wisdom in that response of hers.

There was a stir of interest in the early days when, out of the blue, Josephine Chan Henry became a secretary at the Department: young, petite and very efficient. She drove a huge old black Mercury, one of those fifties models with an abundance of chromium teeth in severe need of orthodontic treatment, spilling out below the front bonnet. A friend of mine who was a boarder at Kingswood from Hong Kong, was keen to meet her. We sat and chatted in her office, not unaware of the silence around

A Remembrance ... (cont.)

the rest of the Department where WORK was happening.

Sure enough, a commandingly stentorian voice came floating over the top of the partitions from the Professor's domain, 'Miss Chan-Henry, I asked for the file on Border angling'. Without hesitation: 'It's the blue one Professor, third down in the pile on the left-hand side of your desk....' Then after a few more minutes, 'Can I have a copy of the letter to the British Museum written the day before yesterday, Miss Chan Henry?', 'Yes Professor, it's with Mrs Smith at the moment, I gave it to her yesterday...' and then Margaret's voice would also respond from her office, across the top of the adjoining partition, 'I've acted on the second paragraph, Professor, the slides will be here tomorrow....'. At one point there was the rapid sound of sandalled feet along the bare boards and suddenly the Professor's face popped around the doorway. A curt nod to us, another file and he was gone. And we knew it was time to leave!

William, their son, and I became close friends during those school years; I had a few days with the three of them down at Knysna, staying in the famous Blue House (kept away the mosquitoes so it was said), a prototype of the somewhat gaunt style which we had become used to next door. We had wonderful days of boating on that magnificent estuary, camping overnight at Featherbed, below the one Head which they owned, sampling the strictly-separation-of-protein-and-starch diet presented rather expedition style. Fish, fish and more fish. Sweetened bread rusks with guavas. Coffee. William and I were ravenous and I certainly ate my delicious fill at meal-

times. I remember the downstairs rooms filled with files and papers, press cuttings, photographs and sketches, watercolours and Indian ink pens as well as the inevitable bottles of specimens and a plethora of expedition equipment. Maps on walls. Going places with your eyes. All overlaid by the patina of Margaret's exuberant commentary, stories and humour. JLB was very preoccupied for the most part; but there were moments over meals when he would ask leading questions and, like her, make an observation or tell a story from their fund of experiences. I travelled the world.

William and I had some good times growing up: exploring the hills around Grahamstown and forming the Protea Club - both mothers sewed the most marvellous badges but the club never really got beyond two to three members; linking up our bedrooms with a marvellous kind of crystal-set communication wire; writing letters while the Smiths were in the Seychelles - receiving replies in envelopes awash with the most exotic stamps; being intrigued a few years later on by the brilliant success of William's extra Chemistry lessons for first year students (his mother passed on her gift of exceptional teaching). Recognising a niche in the market he earned enough in his Honours year to buy himself a new VW Beetle to the consternation of the university Senate! A powerful personality in a 6'6" frame, garbed usually in shirt and shorts under a white lab coat just on his knees with lime green fluorescent ankle socks disappearing into size 12 brown leather shoes, was not easily ignored.

I was in the United States, studying at the University of Wisconsin as a graduate student, when news came of JLB's sudden passing. I read the obituary in the *New York Times*. It was a great shock. Some

part of your life is gone forever. A long, low, rambling white building behind a tall untidy hedge tucked here and there with honeysuckle. It would never be the same again. That's the way it had to be: in death was birth. Margaret Smith began a new life becoming the next Professor in the newly founded JLB Smith Institute of Ichthyology

I never lived in Grahamstown again. My return visits were many, though, and when my father turned eighty, we gave him an album of messages, memories and photographs from people who had walked across and through his life. I went to see Margaret. She had a photograph for me she said, for the album. She was in a wheelchair then. For all that, her strength and vitality were undiminished as was her welcome; well, it made you feel like Shackleton arriving in South Georgia. And there she wrote over the photograph, a message to my Dad (nicknamed the Lahma - L A Hewson, MA), hearkening back to the heady summer of 1953. That smile on the face of JLB says it all.

This was given to me: a childhood and youth-time that was touched by some exceptional people. Two of them, world famous, so it happened, lived next door. That fame appeared totally irrelevant to their lives. No postures, no pretensions, no perfections. Certainly the ironies and certainly the controversies. In the end, what mattered was this: the knowledge that my life had included two extraordinary human beings who lived in a world that was always new. No more, no less. And that it had been a privilege.

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A Peacock, a Blind Barbel, a Railway Wagon and a Disappointed Ichthyologist

Prof Dirk FE Thys van den Audenaerde; Africa Museum, Tervuren, Belgium.

That some important zoological discoveries are just the result of a haphazard contact between scientists and lay people who at the time are unaware of the importance of their knowledge of their environment, is widely known. And, as in all human contacts, the basic elements of human behaviour such as jealousy and friendship, trust and distrust are never far away.

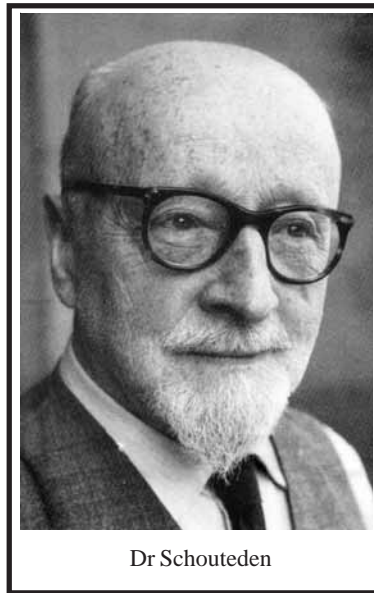
An example can be given by the discovery of the Congo-peacock, *Afropavo congensis*, the last large bird described from Africa, as late as 1936, although a large stuffed specimen was present in the Tervuren Museum in 1898. A strange coincidence of facts and relationships was at the basis of this story.

First there was the Compagnie du Kasai, a commercial company created in Belgium soon after the birth of the Congo-State in 1885, which was having difficulties in recruiting its staff members for Central Africa, especially in those years when living conditions were practically without hygiene and appropriate medicines. Therefore this company organised a small exhibition in 1894 and 1896 in Brussels to show how their agents were living in the Congo. A house was reconstructed to demonstrate the housing conditions; and to show the locally available food and livestock. Amongst the model animals on display was a stuffed Congo peacock. Apparently this peacock was so common in northern Kasai at the time, that white colonists believed it to be a domesticated animal, or one escaped from domestication and returned to semi-feral conditions.

All these stuffed animals were donated to the Congo Museum in Tervuren on its establishment in 1898. The Zoology curator at that time, Mr Coart, assisted by the young Dr H Schouteden, did not even register these animals for the scientific collections as they were not considered indigenous to Africa. Fortunately, however, they were not destroyed but stored in rooms not accessible to the public.

The Museum ornithologists, first Dr Dupond from 1898 to 1910, and thereafter Dr H Schouteden, did not notice the peculiar colours and feath-

ers of this peacock; the specimens were considered as a colour variety of the domesticated peacock. They were not included in the scientific collections as at that time it was generally accepted that there were no indigenous peacocks in Af-



Dr Schouteden

rica, this family being considered as Asian.

In 1914-15 the American Museum ornithologist James Chapin noticed a strange feather on the head-cap of an African chief from the northern Congo and was unable to identify the bird species to which it belonged. Even the local African hunters could not help him. He nevertheless collected the feather and registered it as an unidentified bird feather in the collection of the American Museum of Natural History.

Chapin visited the Tervuren Museum several times to study African birds, and became a friend of Dr Schouteden. During a visit in 1936, he noticed the stuffed 1896 peacock on top of a remote cupboard, and immediately recognised the source of the strange feather. Thus only forty years after the first specimen reached the Tervuren Museum it became clear that there was an endemic species of peacock in Central Africa, a new genus and species for science. Schouteden and Chapin were good friends, and because Schouteden had to admit that he had never noticed the peculiar characters of the stuffed specimen, he left the honour of the description entirely to Chapin, and the species became known as *Afropavo congensis* Chapin, 1936.

Schouteden immediately contacted all

his freelance collectors and correspondents in the Congo about this Congo peacock. Within two or three years he was able to identify the natural range of this species, a sickle shaped area in the Eastern Congo Forest, very similar to the natural distribution of the Okapi. But strangest of all, several correspondents affirmed that they had eaten this bird several times, believing it to be a feral, domesticated peacock. This prompted colonial authorities to place the Congo peacock in 1938 on the list of fully protected animals.

About a decade earlier, the same Dr Schouteden played an important role in the discovery of the blind barbel from the lower Congo grottos, and this also in an unusual way. Being an associated scientist to the Tervuren Museum from 1898 to 1910, Schouteden was mainly concerned with the scientific study of the insects, but was also responsible for the technical registration of all natural history collections. In 1898 he introduced the principle that each species should be represented in the collections by several series from as many localities as possible within its natural range, so as to study geographical distributions and morphological variation, both concepts very new at the turn of the century. The present importance of the Tervuren Museum collections, known for their large series, was largely due to his initiatives. He joined the Museum in 1910, being responsible for all zoology collections, including fishes, but restricted his personal research from then on to birds and hemipterid insects.

For the fishes Dr Schouteden had developed a very good working relationship with Dr GA Boulenger from the British Museum in London. The many fishes received in Tervuren from the Congo were immediately sent to Boulenger for study and identification, but under the condition that unique specimens and types should always be returned to Tervuren. This arrangement worked out very well from 1898 on until 1914, the eve of the First World War. From 1910 onwards, Schouteden began efforts to undertake important scientific collecting trips to the Congo, but the pre-war conditions were not favourable

A peacock, a blind barbel... (cont.)

and his first field trips in Africa were made after the war. His first collecting trip took place from 1920 to 1922 and the second from 1924 to 1926. He became the director of the Museum in 1927, and although he subsequently stopped fieldwork, he continued to encourage others to do fieldwork and collecting.

During his collecting trips in the Congo, Schouteden always tried to make the Tervuren collections as complete as possible, especially with regard to the spread of the collecting localities. With his thorough knowledge of the Tervuren collection he decided to pay special attention to two areas near the coast, the Mayumbe forest and the Blue Mountains in the lower Congo area beyond Matadi.

Zoological exploration of the Congo had begun in the coastal area, as until 1898, the harbour and capital was Boma on the navigable lower Congo River and most activities were concentrated in that area. Upstream of Matadi, a series of rapids and falls below Leopoldville on the Stanley Pool made the river unsuitable for navigation. Up until 1888 all transport to the interior of the Congo was made by porter-caravans which made scientific exploration difficult. From 1890 a good road went from Boma straight north to the Mayumbe forest, a southernmost part of the equatorial rainforest, where chimps and gorillas were still present and even common. It thus was natural that explorers preferred to go to the

Mayumbe forest and it is not surprising that the fish fauna of the small Shiloango-River in the Mayumbe forest was already well known by 1910.

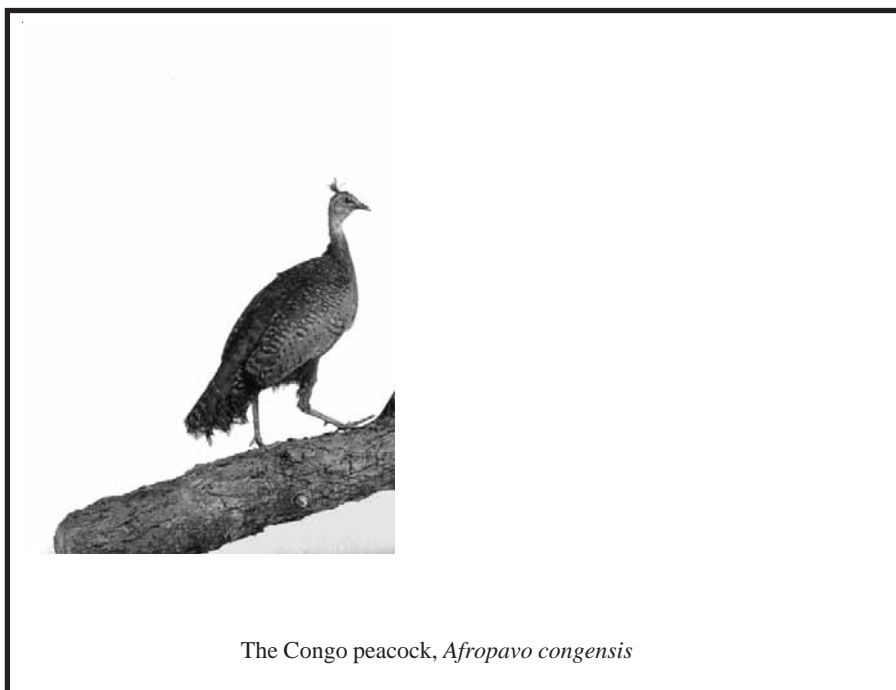
However, between 1890 and 1898 a railway was constructed between Matadi and Leopoldville, under the inspiring direction of an army officer of the engineer corps, Colonel Albert Thys. This construction was in response to the prediction of H Morton Stanley who in 1875 had written that the Inner Congo was economically worthless without railways. The railway was completed in 1898, and from then on the whole navigable part of the inner Congo-River, a 2000 km stretch to Stanleyville (Kisangani) on the main river, to Bangui on the Ubanghi tributary and to Luebo on the Kasai tributary, became available for commercial exploitation and thus also for scientific exploration. From that time on explorers preferred to go directly to Leopoldville (Kinshasa) as a base for expeditions into the tremendously large and fauna-rich Central Congo Basin. But a consequence was that the Lower Congo, and especially the remote mountainous area between Matadi and Kinshasa, were neglected.

After the 1914-18 World War, Schouteden organised two major field expeditions, the first one from the fall in 1920 until spring in 1922, to the coastal area near the Congo mouth and of the Mayumbe forest, before spending several weeks in the mountainous area between Matadi and Kinshasa. There were no commercial activities in that area, colonisation was minimal and there were very few opportunities

for housing and food supplies, and good fieldwork thus was not that easy.

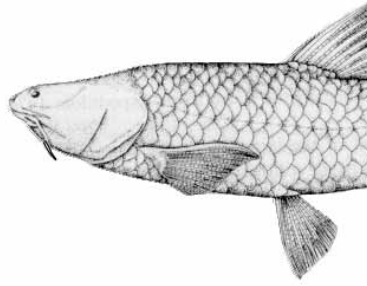
Fortunately during the first month of the field trip Schouteden was accompanied by his wife Mrs J Schouteden. And if Schouteden himself was a rather shy and timid man, not one seeking social contacts, Mrs Schouteden was just the contrary; she had real talent for human relations, and as such had built up a large network of social contacts, in Belgium as well as in the Congo. And it was through these contacts that Schouteden, when in the Congo, became acquainted with Mr G Geerts, Managing Director of the Railway Company that exploited the Matadi-Leopoldville railway, the *Compagnie du Chemin de Fer du Bas Congo*. This narrow single-track railway had stations every 30 - 40 km where the track was doubled to allow the crossing of the daily trains in both directions, and where there were also short side tracks, to set apart the wagons to be loaded and unloaded. The whole system was operated and controlled from the station about mid-way between Matadi and Leopoldville, which gave rise to a small town named Thysville (now Mbanza Ngungu) after the chief engineer responsible for the construction of the railway.

When Schouteden mentioned his difficulties in organising fieldwork in the Lower Congo mountains, Geerts came up with a practical solution to the problem. He offered Schouteden a free railway carriage, a moveable field station, eventually to be railed from station to station, each time being shunted onto a side track for the time Schouteden wanted. Schouteden, who was contented with the circumstances of field conditions and never claimed any luxury and disdained the sometimes snobbish attitudes of the white population in the Congo, was delighted to accept Geert's proposition. He set up his camp bed and personal things in one wing of the wagon, housed his African assistants Ngwe and Nkele in the other wing, and organised the middle section as a working area. This was ideal for the purpose with the sliding doors wide open on both sides for fresh air, necessary when doing various curatorial activities such as stuffing of small mammals and birds, formalising fishes and amphibians, the preservation of insects and the registration of all collections. Schouteden



The Congo peacock, *Afropavo congensis*

A peacock, a blind barbel... (cont.)



Caecobarbus geertsii, discovered at the Thysville caves in the Congo.

preferred to handle the registration, the labelling and the careful preparation of the collection and often left the collecting itself to his African assistants. Things worked out very well that way and after his two field trips his two assistants Ngwe and Nkele continued to collect birds and insects for many years, until around 1970 when they passed away in old age. But in 1920, Schouteden's railway wagon arrived in Thysville and was parked on a side track for about a week or so. Thysville was in an area with numerous calcareous mountains and Geerts told Schouteden about some caves in the neighbourhood with underground rivers and a lake, where blind fishes were present. These caves were well known to the few Europeans of that town but were still unknown to science. Schouteden expressed interest and asked Geerts to send out a team to the grottos to collect some specimens without delay. This was done and so Schouteden received the first three specimens of these blind barbels for his collection.

When Schouteden arrived in Leopoldville, he packed and shipped all material already collected to the Tervuren Museum and continued his expedition for more than a year, returning to Tervuren only in the spring of 1922. However, he was very keen to publish as soon as possible the important novelties, including the discovery of the blind barbel from the Thysville grottos. Mrs Schouteden had returned to Belgium in September 1920 and he asked her to contact Boulenger to assist in describing the fish. The situation with Boulenger proved to be extremely difficult because of Boulenger's changed attitude towards ichthyology in general.

As a young Belgian herpetologist,

on recommendation of the curator, A Günther, around 1870, GA Boulenger had joined the staff of the British Museum of Natural History in London. For about 20 years Boulenger worked exclusively on amphibians and reptiles, producing numerous descriptions and catalogues. From 1886 on however, after the retirement of Günther, Boulenger also started working mainly on African fishes. He became renowned for his descriptions of species and revisions of genera, and for his monumental *Catalogue of the Freshwater Fishes of Africa* (in the British Museum) in four volumes, published between 1909 and 1916. However, towards the end of his active career at the British Museum, Boulenger found himself confronted with the wealth of cichlid species being discovered in the Great Lakes of Africa, and encountered more and more difficulties in classifying all these species. This was a source of profound concern and discontent for him and he even admitted that his classification in the catalogue was rather artificial. In the meantime, a young ichthyologist, Mr C Tate Regan, had joined the staff of the Ichthyology Section in the British Museum, and began his research on African cichlids that resulted in a natural classification that is still widely used to this day. Boulenger and Regan unfortunately did not agree at all, neither in scientific nor on personal matters and were too different in temperament to make a good team. Regan received more and more support from the hierarchy of the British Museum and Boulenger therefore felt humiliated and rejected. At the end of World War I, on receiving his pension, he decided to cut all contacts with the British Museum, to cease all work on fishes, and return to Belgium.

In Belgium he avoided all professional contact with the Tervuren Museum and also with the Natural History Museum in Brussels. Instead he started working on a

catalogue of roses of the world, as an associated scientist of the Royal Botanical Garden of Brussels. His last paper on fishes was a description of the fishes collected by Dr Christy in the Belgian Congo during 1913-1915, published in the *Annals of the Tervuren Museum* in 1920.

Boulenger's decision created problems for Dr Schouteden. Out of respect for Boulenger, who had studied and identified all Congo fishes from Tervuren for almost 20 years, Schouteden did not want to contact Regan on this subject. But from 1919 on, more and more fish collections were received from the Congo, which needed scientific examination and as there was still no ichthyologist on the staff in Tervuren, Schouteden then turned to the Paris Museum and asked J Pellegrin to study the Congo fishes, under the same conditions as was done before by Boulenger. Pellegrin accepted, but soon Schouteden became disappointed by his work, which he considered as not of the same standard as Boulenger's. The collaboration with Pellegrin therefore never reached the same level of mutual understanding as with Boulenger. Consequently, Schouteden did not want to show his blind *Barbus* from the Thysville grottos to Pellegrin.

So Mrs Schouteden went to see Boulenger with the blind fish specimens and - as he told me several times - Boulenger considered the discovery of this species so exceptional that he agreed to make one and only one exception to his refusal to publish on fishes. And as Schouteden wanted to honour his friend and helper, Mr Geerts, who was largely responsible for this discovery, this blind *cyprinid* was described as *Caecobarbus geertsii* by Boulenger in 1921 in the *Revue de Zoologie Africaine*, a journal created and directed by Schouteden. It was even published and registered that the type specimens were collected by Mr Geerts.

On becoming the director of the Tervuren Museum in 1927, Schouteden started efforts for the recruitment of an ichthyologist in Tervuren. In 1931 Dr M Poll joined the staff, first as entomologist, but Schouteden switched him to ichthyology after only three months in the Museum, a decision that later on proved very beneficial for African ichthyology. At that time, in the early thir-

A peacock, a blind barbel... (cont.)

ties, Boulenger still visited the Tervuren Museum from time to time for informal talks with his young friend, the herpetologist G De Witte. Several times he came across the young Max Poll, studying African fishes. Boulenger never greeted Poll and never offered him any advice on fishes. Poll resented this attitude and even forty years later complained about it to me.

Conclusions

The story told here illustrates how personal feelings and friendly or unfriendly relationships were sometimes important elements in major ichthyological discoveries. I have drawn this information from many long informal talks with Dr H Schouteden, Dr M Poll and Mr G De Witte, all three linked to the Tervuren Museum for many decades, and with Armand Opdenbosch, Chief Technician of the Vertebrate Section of this Museum between 1930 and 1975, and often considered to be the living memory of the house. I cannot end the story without emphasising the very special role played by Schouteden, directly or indirectly responsible for so many important discoveries concerning the Zoology of Central Africa.

The blind barbel from the Thysville grottos continued to draw the attention of many people and in 1925 the Tervuren

Museum received specimens collected during a study trip by HRH Prince Leopold, later to become King Leopold III of Belgium, and whose interest in natural history was well known. In 1934 the Tervuren Museum received specimens from the Antwerp Zoo, which showed that there were some efforts to introduce the blind fish for the aquarium trade in Europe.

A major exploration of all Thysville grottos by Heuts and Leleup in 1949, revealed that several subterranean pools in that area contained rather large populations of this blind fish, and that two geographic colour strains were present, one with an iridescent spot on the opercula, the other without, but no special names were proposed for these populations.

Caecobarbus geertsi was probably the first fish, and certainly the first African fish, to receive full protection from the authorities. As early as 1937, the Belgian colonial authorities placed it on the list of fully protected animals, in the same category as the gorilla and chimpanzee. But official protection is not always effective. When travelling through Kinshasa in 1984 and 1985, I met a local commercial agent who regularly shipped large numbers of specimens to East Asia for the aquarium trade. I estimated then the number of speci-

mens to be between at least 400 and 600 specimens a year, which seemed tremendously high for the restricted habitat of that species. The dealer-exporter and the local authorities pretended to be unaware of the protective legislation for that species. What is now left of this peculiar species in its natural habitat, is difficult to estimate. Let us hope that its survival is not in danger.

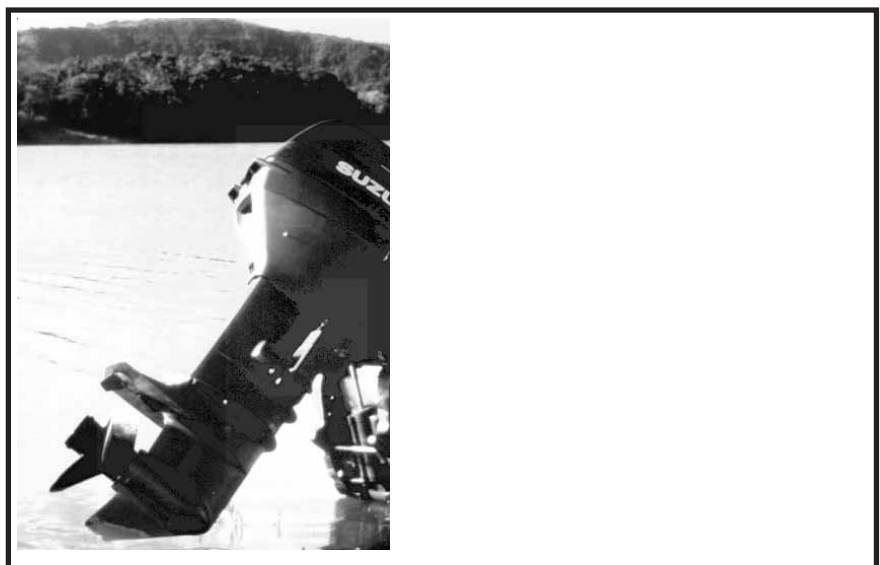
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Suzuki Marine donates engine to the JLBSI

Ms Gail Pullen, JLBSI

Seen aboard 'Aestuaria', the research boat of the JLB Smith Institute of Ichthyology (JLBSI), on the Bira River estuary in the Ciskei, are (left to right) Mr Paul Vorwerk and Dr Paul Cowley. They form part of the Institute's Estuarine Research Group. Recently Suzuki Marine donated a new engine to the Institute to assist these scientists in their research programmes. This research is carried out on most of the estuarine systems in the Eastern Cape. Estuarine research ranges from the influence of freshwater on the function of estuaries to the role of small, temporarily open and closed estuaries on the coastal ecology of the Eastern Cape.



JLBSI gratefully acknowledges the support of Suzuki Marine in estuarine research. Their sponsorship will contribute to the wise management of our estuaries, an important Eastern Cape natural resource.

Kob Population under dire threat of extinction

Guy Rogers, EP Herald

Reprint of the article by Guy Rogers from his column *The Elephant's Ear*, which appeared in the Herald on Thursday, 23rd September 1999

The Eastern Cape kob population is in dire straits: if we don't take drastic action, there won't be any left. That's the blunt message from fish scientist Nadine Strydom, who is uniquely positioned to know. Based at Bayworld in Port Elizabeth, she is working on a PhD thesis on larval and juvenile fish in Eastern Cape estuaries, in association with the JLB Smith Institute of Ichthyology in Grahamstown.

Miss Strydom was prompted to contact the Herald after we published two articles reflecting the outrage of local anglers and residents at the abuse by fishermen of the gravid kob population in the Gamtoos River estuary.

Kob were being pulled out in large numbers on the Gamtoos, we reported, way over the five-a-day bag limit and being sold - itself illegal in terms of recreational fishing permit rules.

Fishermen in up to eight boats at a time were systematically trolling the area and even nets were being used to pull in the fish, including females heavy with eggs.

Serious anglers were disgusted with the situation and said fishing in the mouth during this period should be suspended. The authorities have confirmed they are concerned about the situation but have so far been powerless to clamp down on the culprits. Confirming the situation, Miss Strydom argues that the first thing to do is reduce the bag limit from five to one a day. Research done by Sea Fisheries in 1997 showed that the adult stock of dusky kob (*Argyrosomus japonicus*) has been slashed to between one per cent and 4,5 per cent of its pristine condition (before fishing of the species started). The sobering fact is that despite the new Marine Living Resources Act which legislates reducing the daily bag limit to five fish per person - current research indicates this reduction will likely have

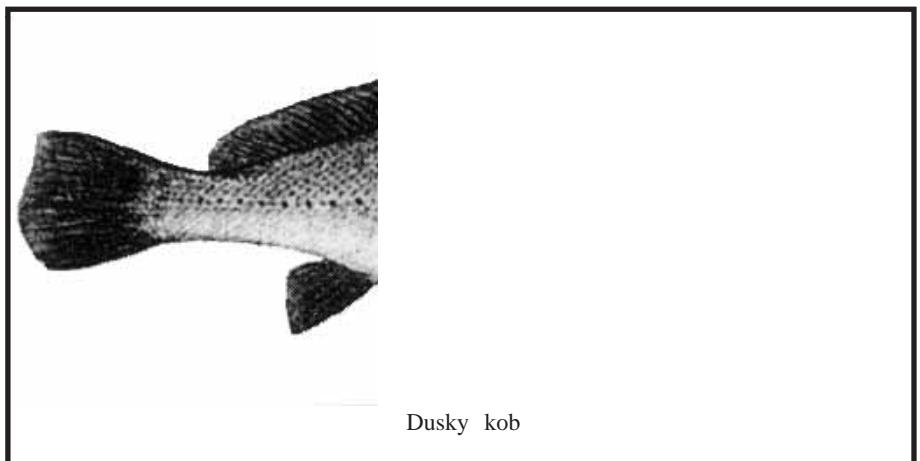
little effect.

In the Gamtoos estuary alone, a bag limit of five a day is only resulting in a seven per cent reduction in kob mortality. In the Sundays and Great Fish it's not working at all. So this holds little hope for real stock recovery.

Current research proposes that a bag limit of one fish a day per person should be imposed, which would result in a satisfactory mortality reduction of 33 per cent. This research, says Miss Strydom, is on the table. It's now up to the politicians to enforce it. Kob spawn in the near-shore marine environment and not upriver, as is widely believed. Having spent about a

Strydom says a best scenario would be for recreational and commercial fisherman to begin imposing a system of ethics on themselves. Beyond the argument to reduce bag limits, they know the present limits - which are detailed in the brochures dispensed with the permits they are obliged to buy - and these figures need to be adhered to. On a wider scale, one of the less degraded estuaries in each region needs to be selected and declared a marine reserve, free from all fishing.

Just closing estuaries during the pre-spawning period is not really tackling the problem, she argues, because of the



month in this environment, the kob larvae enter the food-rich estuaries which form a sheltered nursery for the next five or six years of their lives. Having exited at this point they return as mature fish in pre-spawning mode. Estuaries like the Gamtoos receive plenty of freshwater input from upriver, allowing for increased primary production and a flourishing food chain, enabling these often very large fish (up to 50kg and well over a metre long) to find an abundance of food and shelter. This period in turn allows for an accumulation of energy reserves prior to spawning in the sea. Once the fish have exited to spawn, a large percentage of them will migrate up to KwaZulu-Natal to do so (between August and November), while others will spawn in local waters (October to January). Miss

use kob make of these sites as juveniles. She recounts some horrific stories, like the three guys who came back from the Fish River with a haul of 40 large kob stuffed into their freezer. And the bunch in the Ciskei who use electronic fish finders to look for the big specimens and then troll over them again and again using Rapalas (a brand of lure used with particularly savage effect on kob) until the fish eventually strikes.

A third measure which would help save the species would be for the big motorised launches to be banned from estuaries, she says. A possible alternative would be for trolling to be banned on estuaries during pre-spawning, as this is when the kob are naturally aggressive and at their most vulnerable.



Mantis-shrimp in the Kariega Estuary

Nadine A Strydom, JLBSI, Bayworld, Port Elizabeth

Nadine Strydom, a PhD student with JLBSI, based at Bayworld in Port Elizabeth, comments on a recent unusual finding in the Kariega estuary. The article on the right, by Guy Rogers, appeared in a local newspaper, the Eastern Province Herald.

Mr George Thackeray went fishing on the Kariega estuary recently while holidaying in Kenton and pulled out a very unusual catch.

He was fishing for kob off a boat when he felt a tug on his line and reeled in to find this very peculiar animal clinging to the live mullet which he was using as bait.

He described the animal as a cross between a lobster and a praying mantis and said that in all the 20 years that he had been fishing he had never seen anything like it and brought it to Bayworld where I helped with the identification.

The animal is a vicious looking crustacean called a mantis-shrimp, more specifically the banded mantis-shrimp *Harpisquilla harpax*.

Mantis-shrimps are highly

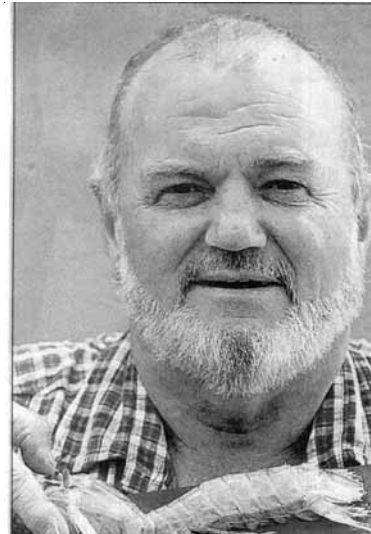
specialised predators which spear their prey, fish and shrimps, using their second pair of praying mantis-like barbed limbs.

Mantis-shrimps live in burrows and rock crevices and viciously defend their territory. They move about by swimming and are usually found in the sea but some researchers have previously recorded them in estuaries.

The strange thing about this catch is that not many fishermen have landed a mantis shrimp before.

They are not commonly seen either, due to the nature of their habitat.

This particular specimen was rather large and measured 25 cm.



Francis Day, *Apogon ellioti* and Sherlock Holmes

Ofer Gon, JLBSI

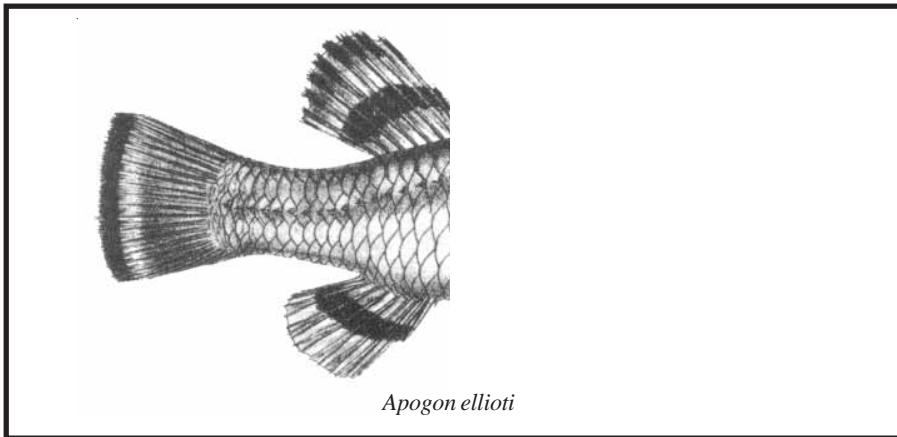
Over the years, several Ichthos articles have described various aspects of the work of a taxonomist, for example the importance of names, how they are created and their meanings. Another important aspect of the work of modern taxonomists is to re-evaluate classifications and the names associated with them. This kind of research involves the necessity to establish the validity of *type specimens* (or *types*). Types are a class of special specimens. They are the actual specimens a taxonomist selects and uses to describe a new species. Since 1961 taxonomists are required by convention to designate one unique specimen, the *holotype*, as the name-bearer of the species. Other specimens used in the description are then called *paratypes*. However, if no holotype has been designated, then all the specimens used for the description have the same sta-

tus and are called *syntypes*. Because type specimens carry the name of the species they are used as the ultimate reference to the particular species, much like the standard metre unit is used whenever it is necessary to calibrate measuring instruments. To ascertain the identity of a specimen it is best to compare it with the holotype of the species to which it appears to be similar. Obviously, most of the time this is an impractical way of identifying fishes because the required holotype may be in a museum on the other side of the world. Identification keys prepared by experts are the next best and commonly used option. However, when a taxonomist does a worldwide revision of a genus or a family it is necessary to examine the types of all the known members of the particular group. This is when the fun begins.

Most problems of finding and identifying types are usually associated with species described in the nineteenth cen-

tury and earlier. The authors of these descriptions did not include important data such as museum names and catalogue numbers; the number and size of specimens were frequently omitted, and there was no designation of type specimens as is done today. Collections were privately owned by individuals or societies, and they sometimes changed hands before being sold to museums whole or in parts. Consequently, finding and verifying the identity of type specimens of species of early descriptions can be a painstaking job, for modern taxonomists, requiring skills and a penchant for detail not unlike those of the well-known Sherlock Holmes. It also entails good lessons in history. But what is a better way to demonstrate all this than an actual example!

Our story begins with a towering figure in the history of ichthyology. Francis Day (1829-1889), of Maresfield,

Francis Day, *Apogon ellioti* and Sherlock Holmes... (cont.)

they found that one of the two fishes at the Zoological Survey of India had been used by Day for the illustration of *ellioti* and thereby partially answered the second part of the question. The illustrated fish must be one of the original two and is therefore a type specimen. This left me with the task of finding which of the three remaining specimens is the second type specimen. Easier said than done. I had no problem verifying that the specimens in India and Holland are indeed the correct species, but the Australian fish was troublesome. When the parcel from the Australian Museum arrived, I eagerly opened it hoping that at last I would be able to identify the remaining type of *ellioti*. To my surprise, the fish wrapped in the gauze was a specimen of *Archamia melasma*, a cardinalfish of another genus and a species that does not occur in India. I emailed Mark McGrouther, the Collection Manager in Sydney, and told him what I had found. He requested that I send the fish back so he could work on the problem. Several months later he emailed back to say that he found a specimen he thought was the real *ellioti*. The length of this fish was 40 mm, far too small to be one of Day's original specimens, but the species identity still had to be verified. Mark kindly agreed to send the specimen to me despite its poor condition. This time the parcel contained a specimen of the cardinalfish genus *Fowleria*, still a far cry from the *ellioti* I was looking for. I told Mark the bad news and added that "...the possibility that Day misidentified this fish is remote, but cannot be ruled out. I suspect, however, that somewhere along the line this fish was switched with the real *ellioti*, probably inadvertently. This could have been before AMS got Day's collection, or when the collection was unpacked and accessioned in Sydney. In the latter case a specimen of *ellioti* would be lurking somewhere in your collection. Any comment?" Mark's reply was "Oh gawd!" but he and his staff kept looking for the elusive fish.

Recently, I received a message from Kerry Parkinson, one of Mark's assistants, that at last they had found the fish I was looking for, and the reason for the confusion was simply a convergence of human errors. According to Kerry, somewhere in the history of their *ellioti* specimen, someone labelled a second bottle with the name and catalogue num-

Sussex, England, developed an interest in natural history from childhood. He graduated from the St. George Hospital in 1851 and decided on a military career. He was appointed to the post of a military surgeon in Madras, India, where he arrived in 1852. There is no clear indication how and when he became interested in Indian fishes. In fact, at the beginning he was known as an expert on Indian birds. When he returned to England on sick leave, he was elected to the Linnaean Society and the proposition for his election read: 'A gentleman much attached to the study of natural history, especially zoology; having paid much attention to the Birds of India, of which he possesses much knowledge.' In 1858 Day returned to Cochin, India, where he started collecting and studying fishes. Most of the next 13 years were spent in India, gradually increasing the time dedicated to fish studies. By 1868 much, if not all, his time was devoted to fish surveys and fisheries inspections. In 1871 he was appointed Inspector General of Fisheries. He built a large collection of Indian fishes and published numerous papers and several books. He returned to England at the end of 1873 to write his masterwork, the *Fishes of India* (Day 1875-78), still an important work on the fishes of the subcontinent. Whitehead and Talwar (1976), British and Indian ichthyologists respectively, published a detailed biography of Day and also attempted to trace the specimens he used for species descriptions and illustrations in the *Fishes of India*. Their publication is a major source for Day's work.

One of the species described in the *Fishes of India* is the cardinalfish *Apogon ellioti* (see illustration). Day named this species after Sir Walter Elliot whom he had met in India. Elliot had an

interest in natural history and was a good illustrator commissioned by Day to draw his fishes. Several years ago I revised the species group to which this fish belongs and I needed to establish the whereabouts of the type specimens and verify that they are indeed the species described by Day. Fortunately, in his original description of this species Day referred to "...two specimens [up] to 4 inches long" that he collected in Madras. But Whitehead & Talwar list four potential type specimens: two at the Zoological Survey of India, Calcutta, one at the Australian Museum, Sydney (AMS), and another at the National Museum of Natural History, Leiden. Where did the extra two specimens come from, and which two are the original type specimens of *Apogon ellioti*? To answer the first part of the question I searched through Day's publications on Indian fishes. In a paper on the geographical distribution of *Apogon ellioti*, published in 1881, Day referred to several more specimens of this species from Madras obtained after the publication of his book, but he did not give the exact number.

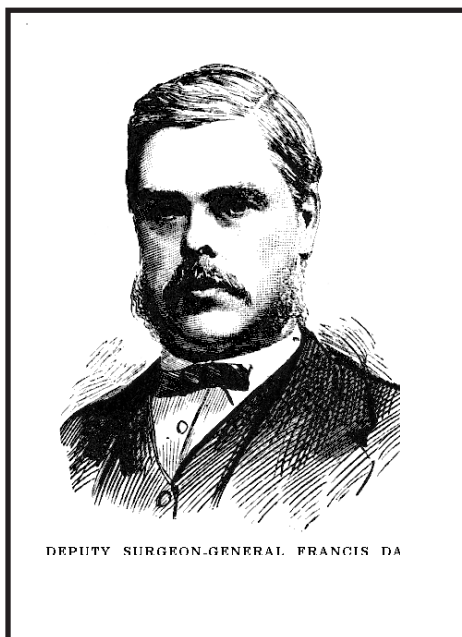
Day had one of the largest collections ever held in private hands, probably second only to the collection of the great Dutch ichthyologist, Peter Bleeker, who was his contemporary. Throughout his professional life, Day witnessed the emergence of national museums and had working relationships with their curators. According to Whitehead & Talwar while he was still alive, he distributed his fishes to twelve national institutions, mostly in Europe, and another five museums received part of his donation to the British Museum after his death. Whitehead & Talwar had traced the fate of Day's type specimens in all these museums and established, as much as possible which specimens were used by Day for the numerous illustrations in his *Fishes of India*. Regarding our species,

Francis Day, *Apogon ellioti* and Sherlock Holmes... (cont.)

ber of Day's specimen and somehow, probably in separate events, the type of *melasma* and the *Fowleria* ended up in it. Unfortunately, we will never know how and why these two errors occurred.

Happy ending? Not quite. The following circumstantial evidence has to be taken into consideration in the assessment of the Australian specimen: (1) Day divided his fish collection into five sub-collections rated in importance by their contents. The collection he sold to AMS, originally intended for the British Museum of Natural History, was not the prime collection but the second best. The decision not to sell to the British Museum was probably a result of his sour relationship with Albert Günther who was then the curator of the Museum's fish collection. The prime collection was sold to the India Museum, Calcutta, shortly after the publication of *Fishes of India*, probably before the extra specimens from Madras were collected.

(2) AMS negotiated the purchase of



Day's collection at the International Fisheries Exhibition, London, 1883. At that time the prime collection was already fully accessioned at the India Museum.

(3) Reporting the new *ellioti* specimens, Day (1881) said that he was distributing

these specimens to European museums, presumably including the British Museum.

(4) The length of the illustrated specimen at the Zoological Survey of India is 102 mm, more than the four inches stated by Day. Evidently, his measurement was an approximation. The 98 mm long Australian specimen is therefore still a contender for a type status even though it probably was somewhat longer than four inches when it was caught (preservatives cause shrinkage).

Ultimately, the solution to the question 'which of the three specimens, i.e. the Dutch, the Indian, or the Australian, is the second type of *ellioti*' may depend on how meticulous Day was in recording collection data for his fishes. It may take a lot longer to find the relevant documents in the various museums associated with Day's collections, and for this we may need the services of people like the prodigious Holmes and Watson.

Obituary : Kate Bertram

Peter N B Jackson, ex-staff JLBSI

Kate Bertram, who died, aged 86 was born on 8 July 1912. As Cecily Kate Ricardo, she was one of the 1930's 'Cambridge School' of biologists whose expeditionary research added greatly to the body of knowledge of Central and East African freshwater fish. Her supervisor was the doyen of African freshwater fish research Dr E.B. Worthington, who fortunately is still alive and well at age 93. Coming down from Newnham College with an MA degree in 1934, Dr Worthington invited her to help him to assess the results of his 1930-31 Cambridge University Expedition to study the fish and fisheries of the East African lakes.

In 1936 Kate Ricardo, with a companion Miss Janet Owen (Mrs Trant), undertook her own Cambridge University Expedition. Its aim was to make a study of the fish and fisheries of Lakes Rukwa and Bangweulu, in what is now Tanzania and Zambia respectively. Access to Lake Rukwa was comparatively easy by road but to get to Lake Bangweulu in those days was more difficult. Dr Ricardo, as was usual in those days, approached the Lake from the east-

ern side. From their base at Sir Stewart Gore-Brown's famous mansion of Shiwa Ngandu, the girls crossed the Great North Road by pontoon at the Chambezi ferry and then walked for four days along the banks of the Chambezi River to Lake Chaya at the eastern extremity of the Bangweulu Swamps. From there they travelled by boat through the swamps as far as Chisi Island on the eastern side of the lake. After six months in the field, of which four weeks were spent in the Swamps, a year was spent in assessing the results at Cambridge. Her report was published by the Crown Agents for the Colonies (Ricardo n.d.).

I joined the Joint Fisheries Research Organization of Northern Rhodesia and Nyasaland (JFRO) in late 1951. Its first task was to investigate the fisheries of Lake Bangweulu and the Swamps. This report was indispensable to us in those early years though to my regret I never met her. The Colonial Office called her to take part in the Platt nutrition survey around Lake Nyasa (now Lake Malawi in that country). The fish and fisheries report, known as the '1939 Survey' (Bertram, Borley and Trewavas 1942), was equally valuable to JFRO. It is still a standard work. She pub-

lished later papers alone and with her husband Colin Bertram.

In later years, until her retirement from Cambridge in 1979, she helped to found a fourth women's college, Lucy Cavendish, and became its first Tutor and second President. She sat for 20 years as a J.P. in Cambridgeshire. In 1991 Ion Trant, husband of Janet, edited Kate's letters in *Letters from the Swamps*, a classic account of colonial life and expeditionary study of those times.

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