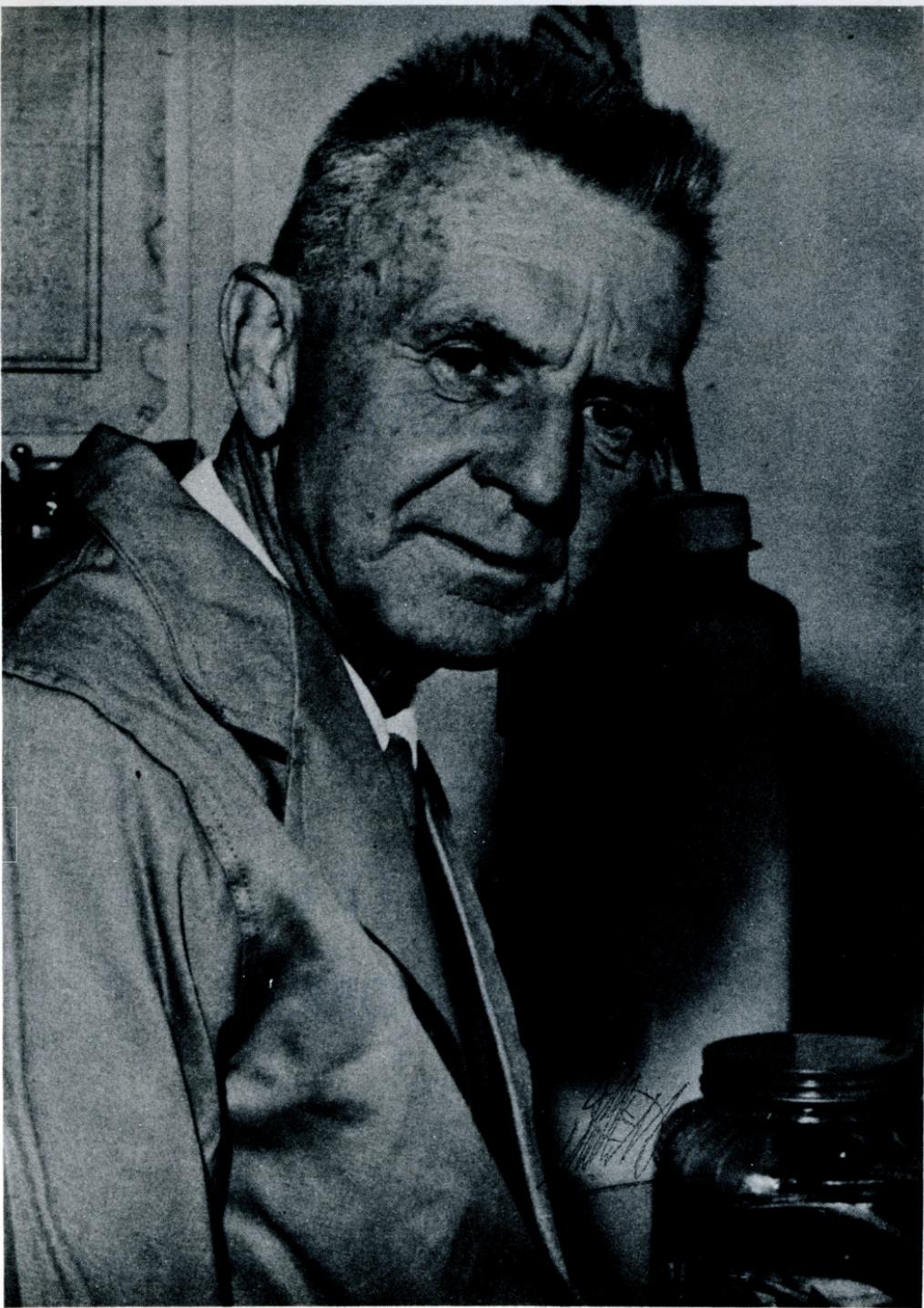


J. L. B. SMITH

HIS LIFE
AND WORK



J.L.B. SMITH – HIS LIFE AND WORK

James Leonard Brierley Smith was born on 26th September, 1897, at Graaff-Reinet, Cape Province, and was educated at schools in Noupoort, de Aar, Aliwal North, and finally, 1912–1914, at the Diocesan College, Rondebosch. In his matriculation year, war having broken out, he served with the citizen force from early August until September 1914, when all schoolboys were disbanded. After his matriculation examination, and having been refused re-enlistment on account of age, in 1915 he entered the Victoria College, Stellenbosch. At the end of the year in the Intermediate Examination of the University of the Cape of Good Hope he passed first in the Union of South Africa and was awarded several bursaries and exhibitions, including the coveted Croll Exhibition. He had already arranged to proceed overseas to join the Royal Flying Corps, but in response to the appeal of that time enlisted instead for service in East Africa in the 12th South African Infantry as a machine gunner. After sketchy military training this force was despatched to East Africa, and the early disasters of that venture need not be repeated here. The young scientist, in company with many many others of relatively tender years, was soon a casualty from tropical diseases, malaria, dysentery, Malta fever, and after some months in hospital was discharged as medically unfit for further service.

He returned to Victoria College in the third term of the year (1916) and resumed his studies. Although handicapped by continual bouts of malaria he made up lost time, and in 1917 graduated as a B.A. of the University of the Cape of Good Hope, being first in the Union of South Africa in Chemistry. At the close of 1918 he obtained the M.Sc. degree (with distinction) in Chemistry and was awarded the Ebden Scholarship for overseas study.* He remained at Stellenbosch on the staff of the Chemistry Department for a time and there commenced his research career. Among other ventures at this time he ran a paint factory.

In 1919 he entered Cambridge University where he carried out research work on the mustard gases under the direction of Sir William J. Pope and later, on photosensitising dye-stuffs and related compounds under Dr W.H. Mills. The results of this work were published in a series of papers, and he received the degree of Ph.D. of the University of Cambridge in 1922. He was a scholar of Selwyn College and

* B.F.J. Schonland and H.J. van Eck were also awarded this scholarship, the former before, the latter after J.L.B. Smith.

Demonstrator in Chemistry at Cambridge University. At school and University he won numerous minor bursaries and prizes, but the major bursaries etc. awarded him were:

1. University Matriculation Bursary.
2. Croll Exhibition.
3. Bartle Frere Exhibition.
4. Stellenbosch University Exhibition.
5. H.B. Ebdon Scholarship.
6. British Government Research Scholarship.

For a new, small and struggling country such as South Africa was during his student years, these represent a considerable percentage of the scholarships available to young South Africans at that time.

PERMANENT APPOINTMENT

While overseas he travelled widely in Britain and also on the continent, where he learnt to speak German fluently and made numerous scientific contacts in different countries. Returning to the Union early in 1923 he accepted a temporary appointment as lecturer in Chemistry at Rhodes University College, Grahamstown. Asked to remain in a permanent capacity, he was so appointed, eventually taking charge of the Organic Chemistry and most of the practical work of the Department. Despite the heavy teaching programme he continued his researches in Organic Chemistry in the field of which he had specialised overseas, but in addition turned his attention to the essential oils of a number of South African plants. The results of this work, some carried out by students under his direction, were published in various journals.

During the twenty-four years he taught chemistry, his students received the finest training in the country. He was a strict but inspiring teacher. Fortunate was the student who studied under him, for most of them owe him a lot more than just their grounding in chemistry.

SPORT

At Stellenbosch he was the best student golfer although he usually played with only one club! He played rugby for his College at Cambridge, and as a young lecturer coached the 3rd to 5th Rhodes University College rugby teams.

He organised fishing (and collecting) holidays at the coast, taking selected students and young staff members first by train then by ox-wagon. The camps were disciplined and well-organised, and it was considered a great privilege to be invited to these camps.

He also played tennis and bridge, but by 1938 had given all these up in favour of walking and his research work. He was a Trustee of the Albany Museum from 1934 to 1965, Chairman for 1946–7 during which time he introduced the motion that a Chairman should hold office for no longer than two years. He took a keen interest in the affairs of the local government school for boys, serving on the Committee from 1934 to at least 1940. At this time he took up beekeeping, and generally when he was missing from his study, he could be found watching the bees as they left and returned to the hive.

ICHTHYOLOGY

Although deeply interested in his chemical researches, he was eventually advised to spend his vacations in the open for health reasons, as he still suffered somewhat from the effects of the campaign in East Africa. Being a research worker by nature his interests were in this manner diverted to what had always been a passion with him, namely fishes. A keen angler from boyhood, he took up this sport with intensity, but soon found the scientific side pressing itself on his notice. Isolated from informed contacts and finding available literature inadequate, he became involved in the scientific study of fishes, and in a short time commenced the publication of a series of revisional papers. This work attracted attention overseas, and developed to such an extent that it threatened to overwhelm him. It was only by the greatest exertions that he was able to cope with the main essentials. In this work he had come to serve all the Museums in the Eastern Province in classifying their fishes.

In April 1938 he married Margaret Mary Macdonald who had studied and worked under him in the Department of Chemistry. This was the beginning of a remarkable husband-and-wife team which was to have an influence on ichthyology not only in South Africa but throughout the whole ichthyological world.

THE COELACANTH

At the close of 1938 a peculiar fish trawled near East London was saved for science by Miss M. Courtenay-Latimer, Director of the East London Museum, who as usual submitted details to him for his identification. This proved to be an event of world importance, because the fish was the now famous Coelacanth *Latimeria chalumnae*. It was the most difficult pronouncement he had ever been called on to make, because even though every detail confirmed his diagnosis, the existence of such a living fish seemed so utterly fantastic and impossible that

it was some time before he could bring himself to make the positive announcement. (This is told in his book "Old Fourlegs, the story of the Coelacanth".) His description of the fish was "perhaps the most meticulously detailed account ever accorded a fish specimen, at least of a carcass" (Hubbs, Copeia 1968 : 659.)

In 1942 the Smiths started a long battle to improve J.L.B's ailing health. They paid great attention to diet and exercise, not eating "dead" food and walking every day. It is estimated that in the last 25 years of his life Smith walked the equivalent of twice round the earth! He regained his health to such an extent that with his wife's help he was able to stand the hardships of the East African expeditions. At the age of 70 he could work long hours, still walked 30 miles a week, was more agile and looked younger than many men ten years his junior.

During the second world war years Smith continued his researches on fishes, and published numerous papers of various kinds. He continued work in Chemistry as well, publishing several papers, one of which was awarded the Marloth medal. At the same time, over several years, he produced three text books on Chemistry, one ran to two and one to four editions while one was translated into Spanish. By this time he was facing an almost impossible situation. Shortage of staff made teaching burdens exceedingly heavy. Organic Chemistry was developing rapidly, and later in the war the needs of ex-servicemen imposed an almost intolerable burden. In addition, his research work on fishes brought heavy and continuous commitments in this country and from all parts of the world and with these it was exceedingly difficult to cope. Eventually he was faced with the decision of having to give up one or other interest, and because of the great field of research that lay open in ichthyology, his choice fell there.

BIRTH OF THE RESEARCH DEPARTMENT OF ICHTHYOLOGY

In 1946 the newly formed South African Council for Scientific and Industrial Research gave timely aid in awarding him a Research Fellowship in Ichthyology, funds for travelling, and later on, funds for clerical assistants and for publication. Rhodes University College provided accommodation, equipment and appointed him Research Professor, and so he became the founder of the only University Research Department in Ichthyology in South Africa – possibly there is nothing quite like it in the world.

Just before this occurred, a group of interested persons who were raising money for a book on South African fishes approached

Smith to undertake the work, and to this he eventually agreed. In part for this purpose he took a considerable staff on an expedition to Portuguese East Africa, where a great amount of valuable material, some new to science, much new to South Africa, was obtained, and his artists were able to record in colour many fishes of that area. At the same time he made contact with the authorities of Portuguese East Africa and established cordial relations over a wide area, which had a profound influence on his work in those parts.

In all this work he was assisted by his wife, who had thrown herself into the study of ichthyology. From force of circumstances she eventually came to be the chief artist of this book, and from then on illustrated all his publications.

“The Sea Fishes of Southern Africa” (“the sumptuously illustrated compendium” – Hubbs) popularly known as “The Angler’s ‘Bible’”, was published in the middle of 1949 and although comparatively expensive was well received by the general public, the first edition of 5,000 selling out in three weeks.

A second edition appeared in May 1950, and an enlarged revised third edition in 1953. The fourth edition published in 1961 was brought up to date by a synoptic appendix, and the fifth, 1965, was reprinted in 1970. This work is used by all active ichthyologists throughout the world and is the first to be consulted not only when south and east African fishes are being studied, but also in many cases, particularly in the field, when Indo-Pacific fishes require identification. The numerical key which Smith evolved is used successfully throughout the world for quick identification.

The publication of “The Sea Fishes of Southern Africa” rounded off much of the work J.L.B. Smith had been doing on South African fishes for the previous twenty years. It turned hundreds of South Africans into amateur ichthyologists, continually on the watch for interesting and valuable specimens which they report or send in from all points of South Africa’s long coastline.

EXPEDITIONS OUTSIDE SOUTH AFRICA

Before the printing of “The Sea Fishes of Southern Africa” in 1948–9 they had organised expeditions to Southern Moçambique in 1938 (Inhaca and Beira), 1946 Delagoa Bay and 1948 Inhaca to Bazaruto.

The Smiths then decided not to work towards a companion volume on the freshwater fishes, but to extend their knowledge of the marine fishes by investigating the little known East African coast.

Most of the additions to the South African fauna come from the Indo-Pacific, being carried southwards down the coast by the warm Moçambique current. After a short expedition to Inhaca Island in 1949, they undertook their first major expedition into tropical waters in 1950. With the great Pinda Reef (14°10'S and 40°40'E) as their main objective, they worked up the coast from Beira to the mouth of the Lurio river. In 1951 after visiting again the Island of Moçambique and Pinda, they worked in the northern parts of Moçambique with bases at Ibo and Cape Delgado. Living aboard a "Vedeta" supplied by the Portuguese authorities, they visited and collected at the Kerimba Islands between Porto Amelia and Cape Delgado.

THE SECOND COELACANTH

Ever since the capture of the first Coelacanth, it became an obsession to find the home of these creatures. As soon as the war ended, quite satisfied that Coelacanths did not live in South African waters, Smith set about organising an expedition to search for them up the east coast of Africa. This fell through probably because most scientists believed the Coelacanth lived in the great depths. Nothing daunted, in 1948 he had a leaflet printed offering a reward of £100 (R200) for a Coelacanth.

The Smiths followed this up by themselves hunting as they worked up the east coast, but the 1951 expedition took them to the northern limit of the south flowing current.

In 1952 they worked at Zanzibar, Pemba, Kenya and Tanganyika, still hunting and offering a reward for a Coelacanth. Some of the leaflets were taken from Zanzibar to the Comoro Islands by a Capt. Eric Hunt who traded between the islands, and on 20th December 1952, fourteen years after the first Coelacanth had been found, a second one was captured off Anjouan Island at the Comores. In his book "Old Fourlegs" he has left a vivid, exciting and eminently readable account of all this. How, to save the specimen, he eventually persuaded the Prime Minister of South Africa to supply a military plane to take him to the Comores. How the plane managed to land on an airstrip made by South Africans during World War II, and how eventually a third Coelacanth was also caught there, proving that the home of the Coelacanths had indeed been discovered. His self-appointed task finished, he was more than happy to hand over the responsibility of the research work on a complete specimen to the French. He always maintained that the first Coelacanth had given him more than any one man could hope for in a lifetime, and that it would have been incredibly selfish to have kept the second to

himself. Wanting to smooth over ruffled feelings, he was anxious that the French scientists should find their own Coelacanth. Failing the finding of the third, he had two plans: taking his specimen to America to be worked on by a team of comparative anatomists, or handing it over to the French scientists as it had been found in French waters. Fortunately for all concerned, the French obtained their own — not only the third Coelacanth on 19th September 1953, but many more before the Comores became independent. When this happened the Comoran authorities offered Smith another Coelacanth, but as his own work on these fishes was over, he advised them to send it to America, preferably to the American Museum of Natural History where it would come into the hands of Dr. Bobb Schaeffer for whom he had a high regard.

FINAL EXPEDITIONS

With the Coelacanth affair neatly tied up, the Smiths were able to return to their work on the fishes of the western Indian Ocean. A short collecting trip from Bazaruto Island southwards to Inhaca Island in southern Mozambique was all they managed in 1953.

During an extensive expedition in 1954, they, accompanied by their 15 year old son William, first visited Kenya (Shimoni mainly) before proceeding to the Seychelles where they worked round most of the islands including the outlying Denis and Bird islands. Then with two vessels, one carrying four South African big game anglers, they travelled to the Amirantes, collecting mainly at D'Arros and Alfonse Islands, thence south to Providence and turning westwards to St. Pierre and Astove, they finally worked at the Aldabras (Cosmoledo, Assumption and Aldabra). This proved to be one of the richest areas visited, and while much material, especially small specimens, was brought back, lack of space and containers seriously curtailed the preservation of larger fishes.

In 1955 Smith accompanied some South African fisheries industrialists to Angola to study the fishing potential there. His expert knowledge of fish and fishing, and his ability to talk Portuguese were invaluable. The group was taken by air from Luanda down the coast as far as Mossamedes in the south.

In 1956 the last expedition undertaken to East Africa was to Pinda, where calm seas during the equinoctial tides greatly facilitated the work. A big collection of fishes was made and many photographs of fishes were taken at this time to be used in subsequent publications.

The Smiths had learnt to speak Portuguese, and formed firm friendships with numerous Portuguese in Moçambique. Among their friends they numbered two Governor-Generals, four Port Captains, Military, Naval and Merchant Navy personnel, administrative officials, journalists, scientists and private persons. Smith gave two public lectures in Portuguese – one at Beira and one at Lourenço Marques, probably the first South African to have done so.

While firms and private persons gave generously towards the expeditions, these were financed mainly by the South African Council for Scientific and Industrial Research. Extensive help however was given by the countries visited, the Portuguese authorities in particular supplied considerable assistance especially in the northern part of Moçambique. Zanzibar, Kenya, Tanganyika and Seychelles authorities and numerous private individuals also assisted wherever necessary.

POST EXPEDITION YEARS

In 1957 as he would undertake no more expeditions outside the borders of the Union of South Africa, and as so much of his time was spent walking, he set about filling a vacuum in his life caused by the expeditions – the lack of a dog. Snoekie, Sharky, Tiger and Mako passed through the family but in Marlin, a cross between a smooth and a wire-haired terrier, he found a dog after his own heart. They were inseparable, and Marlin became his constant companion and shadow until the end.

Having carried out these expeditions while still young enough to stand the hardships, the Smiths now had extensive collections, notes and photographs to work on, and collections from interested persons continued to be sent for identification. They aimed to produce a companion volume to "The Sea Fishes of Southern Africa" on the fishes of the Western Indian Ocean. The fishes were studied family by family and the resulting research work appeared mainly as a series of profusely illustrated monographs in the Rhodes University Ichthyological Bulletins financed by the Council for Scientific and Industrial Research.

At the time of his death thirty-two of these bulletins had been published, a total of 682 pages, a hundred pages more than the 580 pages of the "Sea Fishes of Southern Africa".

In 1956 "Old Fourlegs, the story of the Coelacanth" was published. It appeared in three English editions (1956-1958) including a paper-back (1958), an American one 1956, translated into German 1957, French 1957, Russian 1962 (a first edition of 100,000), Estonian

1964, Afrikaans 1965, Slovak 1970 and Dutch 1971. In South Africa the Library for the Blind had it put on tape.

In April 1958 he attended the first international conference on sharks at New Orleans. While there he was invited by one of the heads of the U.S. Navy to undertake a lecture tour to some of their establishments. He was unable to do so owing to prior engagements in Lisbon where he had an appointment with the Prime Minister, Dr. Salazar, appeared on television (Portuguese) and renewed old friendships made mostly in Moçambique.

In July 1959 he visited museums in Germany, France, Holland, Britain and Denmark to examine type specimens of fishes, and was able to help some of the scientists there with systematic problems.

BOOKS

From 1960 he did not leave South Africa but pressed on with publications. In 1963 J.L.B. and M.M. Smith produced "Fishes of Seychelles" incorporating much of their work in East Africa as well, so that the volume covers the commoner fishes of the Western Indian Ocean. In 1965 they produced "Fishes of the Tsitsikama Coastal National Park" in both English and Afrikaans, and two popular books are in the press — "Our Fishes" (Afrikaans "Ons Visse"), Voortrekker Pers, Pretoria, and "High Tide", a collection of some of his popular articles published by Books of Africa, Cape Town.

OTHER WORKERS

While a number of ichthyologists have worked at the Department of Ichthyology for short periods, two spent a considerable time there. R.A. Jubb was one of Smith's early students, and his ichthyological appetite was whetted when he went camping at the sea with him during the short vacations. On his retirement from the Meteorological Department in Rhodesia, he and his wife Hilda spent five profitable years at the Department of Ichthyology working on freshwater fishes from 1957 to 1961 until space problems necessitated their moving the freshwater fishes and themselves to the Albany Museum.

In 1965 the Anglo American Corporation of South Africa offered Smith a Fellowship for from one to three years. He was to choose a promising young ichthyologist, preferably from another country, who by working in the Department could benefit from Smith's knowledge and experience. He selected P.H.J. Castle from New Zealand whose main research was the systematics of eels, especially larval forms.

He arrived in July 1966 and is due to return to Wellington in May 1969.

HONOURS

J.L.B. Smith was a man who in later life refused some of the honours offered him. "Give it to a younger man who is still climbing and who would really appreciate it — it would be wasted on me" he used to say. He was awarded various service medals from World War I, was made a Fellow of the Royal Society of South Africa in 1935, in 1945 received the Marloth medal; in 1949 was made an Honorary Foreign Member of the American Society of Ichthyologists and Herpetologists (limited to 24 members) and Corresponding Foreign Member of the Zoological Society, London, in the same year. He was the Senior Scott Medallist for 1950, received the Coronation Medal in 1953 and was also made Commandeur de l'Etoile de la Grande Comoro (1953). He was Patron, President or Honorary Life Member of numerous Angling Unions, Clubs and Associations. In April 1968 he was to have received the degree of Doctor of Science **honoris causa** from Rhodes University.

For the last two years of his life he felt his mental powers were deteriorating, was plagued by failing eyesight, and dreaded becoming bedridden and a "useless hulk" from a stroke. Characteristically, not prepared to make do with anything second rate and not prepared to risk circumstances over which he had no control and become a burden to anyone, he took matters into his own hands and ended his life on the morning of January 8th, 1968.

He produced nine books (three in Chemistry and six in Ichthyology), published 14 scientific papers in Chemistry and over 200 in Ichthyology. He also wrote over 400 popular and semi-scientific articles for the layman whom he said supported his work indirectly through taxation and so should be told something of the excitement of scientific research. He described over 375 fishes as new to science and placed South Africa on the ichthyological map.

A great intellect with a superb memory, a brilliant and much loved lecturer who was an inspiration and help to his students and others, a prodigious worker despite his frail body, a man of incredible drive and enthusiasm, who while intolerant of inefficiency and laziness, was considerate, kindly and generous to others. South Africa can be proud of this man, one of her great sons.

**OLD FOURLEGS (the Coelacanth) did not walk,
his transport was provided by VOLKSWAGEN.**
