



## OBITUARY

### DR. RATAN LAL JAIN



(November 1955-March 2014)

Words seem inadequate to express the sadness for sudden demise of Dr. Ratan Lal Jain, Director, Palaeontology Division, Central Head Quarters, Geological Survey of India who succumbed to a massive heart attack on 19th March, 2014, while in office at Kolkata. He is survived by his wife and two daughters.

Dr. Jain was born on November, 1955 in a village called Binota, Nimbahera Taluka of Chittorgarh district of Rajasthan. He graduated from Udaipur University and obtained his Masters from Garhwal University and Baroda University in 1977 and 1978 respectively. He joined GSI in 1980 as Geologist (Jr) and became Director in March, 2009.

In his early professional career, he was meaningfully associated with mineral exploration in the states of Bihar and Jharkhand. Subsequently, he was very competently engaged in geological mapping and palaeontological investigations in different parts of Rajasthan and Gujarat. He was also involved in geological mapping in the difficult terrain of Mizoram.

He had chosen palaeontology, a very basic branch of geology, as the subject very close to his heart and he got engrossed deeply in palaeontological researches. His scientific pursuance earned him Ph.D. in 1998 on 'Miocene Mollusca from Jamnagar district of Gujarat' from Udaipur University.

He was well known in scientific community and has published a good number of research papers in national and international journals. He has successfully authored a volume of *Palaeontologia Indica* on the Miocene molluscs and corals.

With his sudden death, we have lost a renowned palaeontologist who dedicated his life to the cause of palaeontology. We share grief with his family members and friends and send our deep condolences to the bereaved family. We pray to the Almighty to give peace to the departed soul and courage and strength to the late Dr. Jain's family to face this irreparable loss.

**S. Shome**  
G.S.I. Kolkata  
India



## PROFESSOR ADOLF SEILACHER



Adolf Seilacher, who died at the age of 89 on 26 April 2014, was a seminal palaeontologist whose pioneering studies of lower Cambrian trace fossils from the Salt Range of the Indian subcontinent launched a unique scientific journey and a scientific legacy that has changed the practice of palaeontology. Dolf, who travelled the world incessantly, had a special regard for India, which he last visited for fieldwork as recently as 2010. His originality and drive made him an outstanding figure in late 20<sup>th</sup> century palaeontology. He was also a commanding personality who influenced all those who encountered him.

Scientifically, Dolf leaves a body of work that has become part of all basic training in the sedimentary record. Any geologist growing up in the latter part of the last century could not fail to encounter his revolutionary work on trace fossils and the establishment of “ichnofacies”. Just as sedimentologists and stratigraphers recognized that particular sedimentary structures characterize specific environments and facies, so Dolf understood that varied fossilized tracks and trails occupied particular substrate conditions. Seilacher showed that the architectures of these complex structures, incapable of being transported and thus necessarily forming *in situ*, related to animal behaviours adapted to specific settings. This realization stemmed from his fieldwork in the Salt Range, which he told me lasted a mere two weeks. The ichnofacies concept became iconic, and while Dolf was not the only person involved in its conception and infancy, his intellectual input and mastery of the power of his interpretive and instantly recognizable illustrations to convey concepts efficiently, permanently associated him with its foundation.

Dolf pursued two main research themes, with both stemming from the observation and interpretation of form. He was fascinated by how organisms construct themselves, and by how their form related to the both the physical and biological environment in which they lived. He referred to the first topic as “morphogenesis”, and for him this involved a search for constructional rules in organismal development that underlie observed regularities in form. His approach was different from that of developmental genetics, a field whose gestation was contemporary with Dolf’s career. Rather, he was sought to understand how the various architectures realized in different groups of animals reflect the fundamental growth modes, such as whether growth was accretionary or modular, continuous or episodic. Never shy to express his own bold ideas (I recall him once declining to attend a talk of a distinguished colleague saying “You’ll forgive me for not attending, I don’t expect a breakthrough...”) the epitome of this approach was his revolutionary view of the Ediacaran fauna as a group of organisms constructed according to a different set of rules than those operative amongst living animals. Extremely controversial at the time it was proposed, and although this view is today considered to be only partially successful, his seminal manuscript on this topic is nevertheless arguably the single most important paper on these critical fossils ever written.

His second line of interest was the interactions of animals and their environment. Here Dolf’s published interests spanned a vast taxonomic and environmental spread that furthered his fame and notoriety. Specialists across almost every field encountered some novel, and often provocative, Seilacher publication. For me it was what Dolf called “allometric densing”. His idea was that as trilobites grew, new ridges on the external surface of the trilobite exoskeleton were interpolated between previously formed ridges, such that ridge spacing was kept constant, and matched to local sediment grain size. It was quite a thrill for me as a postgraduate student to find Dolf’s idea failed in the fossils I was studying because the distance between ridges grew isometrically, with spacing directly related to overall size. Many specialists have comparable experiences: Dolf’s elegant ideas did not always stand up when tested in detail, but although he loved to be right being shown to be wrong rarely troubled Dolf, whose approach was provocative but certainly not cavalier. He had a strong preference for what he called “the key specimen”, which was invariably one that preserved a combination of features that gave special insight. This approach did not always win him instant respect within communities of specialists used to a more catholic approach to available data, but no one who listened to him make reasoned defenses for his ideas could fail to be impressed at his conviction, insight, and intellect. This breadth of interest notwithstanding, it would be wrong to see Dolf as exclusively a morphological palaeoecologist. His interest in the biostratigraphic use of trace fossils in siliciclastic environments of the Middle East and northern Africa endured throughout his career, and built on his Salt Range experience. He was often in demand in North Africa for stratigraphic opinions of economic relevance based on his “ichnostratigraphy”.

This memorial is followed by a manuscript which we worked on together in the years shortly before his death. In my view it has several hallmarks of a classic Seilacher paper. These include a key specimen from which the initial insight is drawn (in this case a trilobite exuvium associated with a burrow whose morphology can clearly be linked to the same type of trilobite). Second, there is a novel idea in which the fossils form is brought to life through interpretive drawings that emphasize key features in the specimens (that some trilobites anchored their appendages in a stiff mud as an aid for moulting). Thirdly, an analogy, sometimes introduced with a touch of humour, which enables the reader to access the explanation (in this case the gumboot getting stuck in the mud). As was often the case with Dolf's work, this study was not met with open arms, and though submitted to several of the world's leading scientific journals, Dolf was disappointed that it was never selected for formal review. We offer it here as a testament to Dolf, who always wanted to see this published.

Dolf's scientific contributions were widely recognized during his life, and culminated in his being awarded the Crafoord Prize of the Swedish Academy of Sciences. His contributions to science will endure beyond him. But it is also of interest to consider the historical context in which his particular career took place. Dolf grew up in a Swabian family that ran a local pharmacy business. His youth saw the rise of Hitler, and Dolf, like other boys of his generation, participated in the Hitler Youth, although his dark hair (and I also suspect his highly individualistic personality) meant that he was not a favoured recruit. He was then conscripted into the Germany army, and was initially posted in Norway following which he was sent to the Russian front, where he was injured in battle. Dolf was always too much of an iconoclast to prosper under an authoritarian regime, but his oldest brother, an officer in the German Army, gave his life to Hitler's cause in the futile resistance to the Allies as Germany's defenses collapsed. Dolf spoke openly about these experiences and was deeply sensitive to the false allure of nationalism and the cult a leader as father of the nation. Later in his career, he took pleasure in his strong personal friendship with palaeontologist Stephen Jay Gould, who happened to be Jewish, and who appreciated Dolf's unique approach to palaeontology and his style of presentation.

After the war, Dolf went to the University of Tübingen, and financed his studies by gathering and selling mushrooms collected from the local mountains. It was at that time that he caught a packet steamer to Pakistan through the Suez Canal, while his PhD guide, Schindewolf, flew to Lahore. Dolf's first impressions of Asia made a significant impact upon him, and drew him and his new wife, fellow palaeontologist Edith Seilacher, to his first academic position, in Bagdad. There Dolf pursued a programme of teaching and field research, while other colleagues in the university either dictated lecture notes in monotone, or simply wrote their lectures on the blackboard without speaking. Dolf returned to Germany, and experienced the growth of student unrest in the 1960's, which resulted in his declining academic appointments in America only to find the turmoil worse in Tübingen (where Dolf's colleagues included the future Pope Benedict). Dolf responded to student demands for alternative education by declaring that all his classes would be held in "harmony with nature" in the field, making his students walk at high speed from campus to localities situated miles away. His own children grew up at this time, and benefited from the many travels that Dolf and Edith enjoyed associated with their work. Later in his career Dolf took up an appointment in Yale University in the USA, where he spent several months each year. He mentored numerous students over the years and inspired countless others. His travelling exhibition "Fossil Art" was sponsored partly through the Crafoord Prize award, and featured natural specimens of alluring quality. It toured widely in Europe and North America.

The accompanying photographs show Dolf enjoying himself in the field in Rajasthan by conversing with a camel (he took great joy in simple humour), and at home in Germany making a clay cast of a seal from Mohenjo Daro that was part of his personal collection. I recall an extraordinary evening in which he showed me his collection of cylinder seals gathered from all over Mesopotamia and beyond that he began to assemble during his sojourn in Bagdad. The collection was housed in an ancient metal box that was remarkable in itself. When I asked about it, Dolf explained that an old farmer had given it to him when, as a boy, he had been sent collecting scrap iron for the war effort. Dolf could not bear to see the box melted down for armaments, so he hid it under a bush. "This is why we lost the war!" he said with a hint of a smile. Dolf then brought the cylinder seals to life by rolling them over modeling clay. The transformation of these carvings into positive impressions in the clay was truly astonishing for the craftsmanship it revealed: extraordinary fidelity of musculature in figures only millimeters in height. Dolf was masterful in his explanation of the symbolism of each seal, in interpreting what each element of the design depicted and represented. Just as in his own research and life, he turned negatives into positives, bringing these ancient structures to back to life with all the immediacy and vitality that their artistry had sealed within them, and thus I glimpsed the conclusion of Rabindranath's poem *Mayurer Dhristi* "time's great disregard surrendered to that instant". I am deeply grateful for the chance to have been briefly associated with Dolf Seilacher, which has been a highlight of my career.



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**THE PALAEOONTOLOGICAL SOCIETY OF INDIA, LUCKNOW**

**STATEMENT OF RECEIPT AND PAYMENTS**

(From 1st April 2012 TO 31st March 2013)

<b>RECEIPTS</b>	<b>AMOUNT</b>	<b>PAYMENTS</b>	<b>AMOUNT</b>	<b>AMOUNT</b>
<b>Opening Balances:</b>		Remuneration to Part-Time Workers		50400.00
F.D.R	1049677.00	Auditors Fees		5618.00
UCO Bank (A/C No. 16644 )	2534.34	Printing & Stationery Expenses		4945.00
IOB (1867)	252785.13	Postage & Telegram Expenses		23962.00
Cash in hand	2942.18	Telephone & Internet Expenses		11216.00
	Sub-total <b>1307938.65</b>	Journal Expenses		180332.00
		Miscellaneous Expenses		2705.00
Admission & Subs. Fee	46040.00	M.R Sahni Memorial Lecture Expenses		17005.00
Sale of journal	165906.00	Conveyance Charges		1280.00
Intrest on Saving A/c	10137.00	S.N Singh Mem. Lecture Expenses		18223.00
Intrest on FDR	19736.00	Website Expenses		17000.00
DST Grant	75000.00	Membership Subscription Expenses(IPA)		1470.00
		Registration Renewal Expenses		1550.00
From R.C.Misra Gold Medal	100000.00	Advertisement Expenses		24054.00
From Prof. S.K.Shah for Publication	7500.00	Part Payment of Bibliography		115000.00
For Publication of Biography of				
Prof.Sokolov	224149.00	Gold Medal Expenses		4465.00
		TDS		4553.00
		Computer Expenses		11550.00
		<b>Closing Balances :</b>		
		Cash in hand	50.18	
		UCO Bank (16644)	2637.34	
		IOB (1867)	193531.13	
		F.D.R.	1264860.00	1461078.65
<b>Total Rs.</b>	<b><u>1956406.65</u></b>			<b><u>1956406.65</u></b>

**AUDITOR'S REPORT:**

We have checked the above statement of Receipt & Payment of Palaentological Society of India, Lucknow for the period from 1st April 2012 to 31st March 2013 and found correct as per the records produced before us and information & explanation given to us.

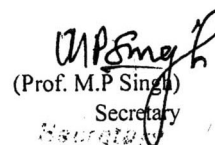
For Amit Agarwal & Co.  
Chartered Accountants

(CA A.K Agarwal)  
Partner  
Place : Lucknow  
Date : 24.04.2013

  
(Prof. S Kumar)

Treasurer

Palaeontological Society of India

  
(Prof. M.P Singh)  
Secretary

Palaeontological Society of India  
Lucknow