

OBITUARY



Virendra Kumar Nayak
(1935- 2002)

It seems it was only yesterday that Prof. Nayak wrote an obituary for Prof. W.D. West (*Geol. Soc. India*, v.44, no.5, 1994). I never thought I would be writing this tribute for one of my dearest and respected friend, philosopher and guide so soon.

In his death the country-nay the whole geological world has lost a teacher cum researcher *par excellence*. The field of economic geology, ore mineralogy, especially of manganese ore deposits and study of meteorites has lost one of the ablest, knowledgeable and yet unassuming researcher of our country.

Virendra Kumar Nayak was born on 22nd March 1935 at Pachmarhi, M.P. He obtained his Bachelors degree in Science from Jabalpur and did his M.Sc. in Geology from the University of Saugar in 1956. He completed his Ph.D. in 1962 under the able supervision of Prof. W.D. West on 'The Mineralogy and Genesis of the Manganese Ores and Minerals of Kajlidongri mine, District Jhabua, Madhya Pradesh'. And what a work it has been! He has been at it ever since. During this period his discovering, *Ardennite* (*Nature*, v.198, no. 4882, pp.778-779, 1969), mineralogy and genesis of Mn ores of Kajlidongri mine (*Eco. Geol.*, v.61, no.7 pp.1280-1282, 1966) and chemistry and mineralogy of the rare mineral *winchite* with Bernard Leake (*Min. Mag.*, v.40, pp.395-399, 1975; *Am. Min.*, v.66, pp.625-631, 1981) have been outstanding contributions.

His teaching career began in the School of Geology, university of Recife, Brazil. For four years (1962-65) he was teaching economic geology and initiating a course in ore microscopy while contributing towards the study of some

Brazilian manganese ores and minerals. After finishing his assignment at Brazil he spent a very useful and productive period at Cambridge, Amsterdam and Heidelberg. At Cambridge he got the experience with all the modern techniques in ore microscopy under Dr. NGF-M. Henry, while at Amsterdam he worked on the Brazilian Mn ores with Prof. Uytendogaart. At Heidelberg he had the unique distinction of working with giants like Prof. Paul Ramdohr and Prof. G.C. Amstutz on polished sulphide and oxide ores.

In 1966 Prof. Nayak joined the Centre of Advanced Study in Geology, University of Saugar where he not only taught economic geology and ore microscopy, but also developed a very good ore microscopy laboratory. Around this time his research interest was focused on the Lonar Crater of Maharashtra State, India (*EPSL*, v.14, no.1, 1972, pp.1-6) an interest that gripped his imagination and research interest till he breathed his last and also targeted Ramgarh annular structure at Ramgarh, Kota District, Rajasthan for future study.

His second visit to Cambridge, I.G.S. London, Imperial College of Science and Technology and Durham University under British Council fellowship (1973-74) enabled him to do work further on Lonar Crater material (with Dr. S.C. Agrell, the eminent Lunar Scientist). This joint study led to the discovery of 'impactite glasses' vis-a-vis recognition of maskelynite in the Lonar samples definitely established Lonar as a Meteorite impact crater. During this time he also revisited Heidelberg, working with Prof. Ramdohr studying manganese ores and learning advanced quantitative techniques in ore microscopy.

In the year 1986, joined the Indian School of Mines (ISM), Dhanbad as Professor in Economic Geology and Ore Mineralogy. The gain of ISM was the irreparable loss of our department in losing the services of a renowned researcher and accomplished teacher. He continued his good work at ISM till his retirement in 1995, while also adding ore deposit modelling to his area of research contribution (with Sarkar and Rao, *Jour. Geol. Soc. India*, v.46, no.2, pp.139-147, 1995). He continued his research studies for another 2 years at ISM as Emeritus Fellow of the All India Council for Technical Education (AICTE), before leaving Dhanbad.

In 1998 he returned to Sagar to join the Department of Applied Geology as a UGC emeritus Fellow. It was a happy reunion indeed to all of us. He not only continued his research but also willingly took up occasional teaching at the PG level. He always made himself available to give guidance to a needful student, researcher or teachers, besides to the University in many academic and administrative tasks, from time to time.

Prof. Nayak was a cut above routine researchers, – very careful and painstaking. He was a visionary and could think ahead of his times and his ideas encouraged others to involve themselves. One such contribution of his was in proposing a term – ‘Geoplanetology’ for the study of “geological and related aspects of the moon and other planets which are likely to be investigated in the future” (*Bull. Geol. Soc. Am.*, v.81, pp.1279-1970). This now finds a place in the *Glossary of Geology* (American Geol., Inst. USA, p.259, 1980). More recently, his visionary ideas on geological lessons from nuclear tests at Pokharan, Rajasthan, India (*Curr. Sci.*, v.78, no.8, p.940, 2000) have similarly stimulated scientists from India and abroad to pursue his ideas. His latest ideas on Lonar and astroblemes at Ramgarh (33rd Lunar and Planetary Science Conference, Houston, USA) will similarly generate renewed interest in fellow scientists from India and abroad.

Kajlidongri Manganese mine yielded another strange reddish brown mineral. Initial studies (in collaboration with the Genova group of Cabella, Lucchetti and Marcsotti) showed it to be an oxide of Sb-Ti-Fe. He proposed it to be named after Prof. West as ‘WESTITE’. However the latest study on it has shown it to be a natural occurrence of Squawcreekite-rutile solid solution series and was presented at GEOITALIA, 1999. The full work will be appearing in due course. Another significant work is on the rare

amphiboles from Kajlidongri and Tirodi Mines (with Tait and Hawthorne, University of Manitoba) in the *Geol. Soc. Am. Annual Meet*, Reno, Nov. 2000. An ellipsoidal manganese oxide from Ukwa Mines, India (with Usui, *Geol. Surv. Japan* and Alexander, Sagar) is another interesting unfinished task, which will be presented at the 18th Int. Conference, Mineralogical Association, Edinburgh during Sept. 2002.

After his sad demise, the very next day the June 2002 volume of *Antarctic Meteorites* (National Institute of Polar Research, Tokyo) arrived which features his latest contribution, “The Lonar Impact Crater, India - A terrestrial analogue with Craters on Mars” has a pride of place in this as a befitting tribute to the man who brought Lonar Crater into the limelight of international scrutiny. It will not be out of place to quote few lines of his from this work, “All these studies are stimulating and are likely to shed new light on the significance of water and cratering processes on planetary bodies. The Lonar crater in basalts can serve as a case study to answer several unresolved questions in understanding the geochemical processes on the Mars and other planets in the solar system” (*Antarctic Meteorites XXVII*, June, 2002 p.127).

As a person Prof. Nayak was very sincere and hard-working, gentle, open, soft-spoken and above all trustworthy. For those who knew him well, he had a sense of humour due to which working with him was a pleasure and his honesty and dedication in teaching and research was also a part of his daily life in other matters.

To the man who through his monumental contributions on manganese ore minerals, Lonar crater and for his visionary ideas like Geoplanetology, brought national and international recognition, we the members of the Dept. of Applied geology and the Centre of Advanced Study in Geology, salute with profound regards and affection as we are sure Earth Scientists all over the world who knew him will. The most fitting tribute to him will be to finish his unfinished tasks and to imbibe in us his qualities of mind and soul. Prof. Nayak is survived by his wife Rajkumari, daughter Monika and son Anandvardhan. May god grant the needed strength to them and to us to bear this loss.

Department of Applied Geology PRAMOD O. ALEXANDER
The University of Sagar,
Sagar - 470 003
Madhya Pradesh