William Frederick Smeeth (1865-1951)

Chief Architect of the 'Mysore Geological Department'

In my capacity as sometime Secretary, sometime Editor and presently President of the Geological Society of India, I have been presenting brief biographical sketches on the life and work of persons who have devoted their time and energy to the advancement of our science. An appreciation of their work and achievements and acknowledgement of our indebtedness to them is a duty cast on us. An institution which forgets its founders is as good as lost. I have been thinking lately of the early pioneers who laid the foundation of the Mysore Geological Department, an institution in which I served for nearly thirty-five years.

Among the stalwarts of that period the pride of place should go to Dr. William Frederick Smeeth, the chief architect of the Mysore Geological Department who built it from scratch and gave it a status and an honoured place in the geological surveys of the world.

Early Life

Smeeth was born on 29th December, 1865, at Rathmines County, Dublin, in Ireland. He had a brilliant academic career, graduating from Trinity College, Dublin, obtaining both BA and BE degrees and winning a gold medal in physics and chemistry. He took his MA degree in 1892 and his DSc in 1900. In 1889 he won a National Scholarship for studying geology as well as mining and metallurgy at the Royal College of Science and the Royal School of Mines (the present Imperial College of Science and Technology) South Kensington, London. He obtained the Associateship (ARCS) in 1891 and ARSM in Metallurgy in 1892, standing first in both.

Between 1893 and 1897, for three years, he served as a demonstrator in geology and also as lecturer in metallurgy at the University of Sydney, Australia. It is not clear as to what made him give up his position in the university in Australia and take up a job in India, joining the newly started Department of Mines and Geology as State Geologist in January, 1898.

Mysore Geological Department : Beginnings

Mysore, a major State in south India, was considered to be a progressive State with an administration responsive to the welfare of its people. It had a succession of capable administrators of high calibre in Dewan Rangacharlu, K. Seshadri Iyer,

M. Visvesvaraya and Mirza Ismail who functioned as Chief Ministers of the State. It was Seshadri Iyer who commissioned the first hydroelectric project in the State at Sivanasamudram, the first such project in the whole of Asia. The Geological Survey of India, which had come into existence in 1851, had identified a number of old workings for gold in the State. At one place near Kolar, exploration at depth had revealed the persistence of gold-bearing lodes which later developed into a world class gold mine producing over 800 tonnes of gold. Hopes were entertained that the other old workings too would develop into productive mines. Seshadri Iyer felt there was a real need for carrying out a systematic geological survey of the whole State. A geological department was therefore set up at Bangalore as early as in 1894 when most countries in the world had no geological surveys of their own. The services of Robert Bruce Foote, who had earlier surveyed a greater part of Mysore as an officer of the Geological Survey of India were secured. Robert Bruce Foote and J.W. Evans were appointed as the first and second State geologists of the new department.

Bruce Foote retired from service in September, 1897. Evans succeeded him but was continually on leave on account of ill-health and he resigned in 1899. W.F. Smeeth entered service in January, 1898, and was appointed as officiating State Geologist and also Chief Inspector of Mines and ex-officio Secretary to Government. In 1919 the Department of Mines and Geology was split and the geology section re-designated as the Mysore Geological Department with headquarters in Bangalore. The mining section became the Department of Mines and Explosives and was placed under the charge of Chief Inspector of Mines stationed at Oorgaum in the Kolar Gold Field. For 20 years (1898-1919), Smeeth remained in full charge of the Geological Department.

The retirement of R.B. Foote and the resignation of J.W. Evans had placed Smeeth in full charge of the Department entrusted with the formidable task of carrying out the geological survey of Mysore State covering an area of 29,305 square miles and in making an assessment of the mineral resources of the State. How he achieved these twin tasks with the help of just a few recruits who had no prior knowledge of the subject is a saga of achievement deserving of the highest praise.

Seven apprentices had been recruited in 1895 – H.K. Slater, B. Jayaram, H.V. Krishnaiya, B. Shamanna, A.T. Setlur, B. Venkata Rao and V.S. Sambasiva Iyer. Of these, Slater and Jayaram were undergraduates and the rest graduates in physics and chemistry. None of them however, had any knowledge of geology and had to be trained in geological mapping, survey and prospecting. Smeeth at that time was a young man of 35 years, full of enthusiasm, and took the work assigned to him as a big challenge. Of the seven assistants he retained only three – Slater, Jayaram and Sambasiva Iyer for geological survey and mapping. Venkata Rao, Krishnaiya and Shamanna were earmarked for chemical analysis and Setlur for inspection of mines and explosives. The first officer recruited with a degree in geology was P. Sampat Iyengar. These were the youngsters who were available to Smeeth for carrying out the geological survey and mapping of the entire State. Smeeth sent Slater and Jayaram to London to receive training in petrography at the Royal College of Science. Sambasiva Iyer was entrusted with exploration work for locating minerals of economic interest. The three assistants Slater, Jayaram and Sampat Iyengar were the only people available for geological mapping. The western hilly part of the State, mostly inaccessible and covered by dense forest was assigned to Slater and Sampat Iyengar. It is to the credit of these two young men that they were able to complete thework assigned to them with great credit. The maps produced by them were some of the best maps of a complex Precambrian terrain. The organization of the survey parties and the efficient check exercised reflect on the remarkable organisational capabilities of Dr. Smeeth. He provided the lead, direction and purpose to the Department, set the goals and showed his assistants how to achieve them. Smeeth also recruited two of the best draughtsmen, Joshi and Shankar Rao and gave them intensive practical training in drafting geological maps. It is these two draughtsmen who were responsible for the preparation of the first geological map of Mysore State on a scale of 8 miles to an inch. Even today this

map ranks as one of the best maps of a Precambrian terrain. Along with the map an outline of the geological history of Mysore was issued as a Bulletin of the Department.

In 1937 when I joined the department, the organizational efficiency of the system built by Dr. Smeeth was still in operation. You had only to give an indent to the Office Manager and the entire equipment required for camping would be assembled and moved to the railway station for transport to the destination. Each officer was given the assistance of two servants, one for pitching tents and the other to look after miscellaneous work including preparation of thin sections of rocks. They would proceed to the railway station, get the equipment released by paying the freight charges and transport them to a suitable site nearby. All this work was carried out with remarkable efficiency. The goal set before Dr. Smeeth was the carrying out of a survey of the entire State and the preparation of a geological map. In fulfilling this major task he could brook no opposition. Strict obedience to instruction was mandatory and he was therefore very strict in enforcing discipline. Officers sent on survey assignment were never allowed to return to headquarters until satisfactory completion of the work assigned and stay in the field could extend to more than six months at a time. It was real hard work but the officers assigned for field duty did not complain. Each day's work proved to be exciting and the feeling that they were adding to the knowledge of the State acted as an incentive to further work. The main concern was the preparation of an accurate geological map and everyone cooperated ungrudgingly. Smeeth by himself did not map any part of the Mysore State, his work being mostly confined to supervising the work of his assistants. He has left behind in the form of lengthy notes his observations on the geology of the State and these formed a part of the Records of the Mysore Geological Department which were issued with remarkable regularity. He saw to it that every report was accompanied by a geological map in colour.

Smeeth chose to examine the Kolar Gold Field area himself. The geology of the Kolar area was complex and the relationship of the gneisses and the schists was not clear. Everywhere he found evidences of large blocks of schists occurring as lenses within the gneisses as inclusions which made it difficult for him to accept the prevailing view that the schistose rocks were sediments deposited over a gneissic basement. The evidence was clear that it was the schists that were the older rocks and the gneisses were of a later date showing an intrusive relationship. This view was radically different from that entertained by the officers of the Geological Survey of India some of whom went to the extent of ridiculing the view held by the 'Mysore geologists' who wanted them to believe that the schistose rocks were deposited in mid-air!

Smeeth became the champion of the all-igneous view and according to him conglomerates were autoclastic. Even such distinctly identifiable sediments as sandstone, limestone and banded ferruginous quartzites were regarded as deformed portions of a unique type of acid intrusive, which he named as Champion Gneiss. This was an extreme view and the domineering way in which he forced it on his assistants set Mysore geology on the wrong track for over two decades.

Smeeth addressed the Indian Science Congress first in 1915 and again in 1924 where he outlined the geology of the State giving expression to his views boldly before a highly critical audience. While most Indian geologists did not agree with his views, Fermor gave him qualified support.

Smeeth does not seem to have taken interest in geology after retirement in 1919. He was on special duty at the Mysore Iron Works, Bhadravati for about two years effecting improvements in the mining and transporting of iron ore from Kemmangandi, Bababudan hills to Bhadravati, the site of the iron works.

Smeeth had a very clear conception of the functions of a Geological Survey Department. Fulfillment of societal obligations were to him more important than mere academic pursuits. Top priority was thus given to the identification of mineral resources as well as groundwater resources.

Mineral Resources of Mysore

M. Visweswaraya, administrative head of Mysore State, had initiated many progressive measures for

improving the State's economy. He was responsible for the establishment of the University of Mysore, the setting up of public libraries and the construction of a dam across the river Kaveri at Krishnarajasagar. It was at his direction that the Mysore Geological Department brought out a book on the Mineral Resources of Mysore State dealing with the mode of occurrence, distribution, and possibilities of utilisation of economic minerals by setting up industries in the State. No other State had attempted a similar study and presented reviews of their resource potential. The industrial progress of Mysore State with the start of quite a few mineral-based industries was the result of the pioneering study undertaken by Smeeth and Sampat Iyengar nearly a hundred years ago. What is more important to note is that they had the foresight of providing a translation of the book in Kannada, the regional language of the State.

Groundwater Resources

Few people took interest in the scientific study of groundwater resources, especially in the hard rock areas. Since this hidden resource was out of sight, it was also out of mind of most official agencies, both at Central and State level. Smeeth, however, took special interest and initiated systematic study of water levels in wells in different parts of the State. The early Records of the Mysore Geological Department had earmarked several pages presenting a record of water level changes, and Smeeth felt the need to widen our knowledge about the occurrence, movement and development of this important resource. He also made a special study of groundwater encountered in deep mines.

He was far ahead of his times in realizing the importance of groundwater in dryland farming. The necessity for rainwater harvesting to augment the resource had been realised and the Notes on Underground Water Resources in Mysore presented by him was a major contribution which should be read with great care by all those engaged in developing this increasingly important resource.

Life after Retirement

Nothing much is known of his life after retirement. He settled down in the Channel islands and shifted later to Turnbridge Wells near London. Only B. Rama Rao kept up correspondence with him until 1947 and he seems to have passed away quietly in 1951 at the ripe old age of 86 years. From the impressions left behind by B. Rama Rao, Dr. Smeeth emerges as a strict disciplinarian with very few friends – a man of few words sitting silently for hours together after a day's hard work in the field, puffing at his pipe and taking no notice of any one.

On hearing the demise of Dr. Smeeth, B. Rama Rao wrote:

> 'With the death of Dr. Smeeth, the last link in the chain of older generation of geologists, who have contributed so much to our knowledge of the geology and mineral resources of Mysore, has snapped and all that remains now is only the memory of this pioneer, the brilliant geologist – the chief architect of the Mysore Geological Department – to be cherished long by that organisation.'

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