



*A. U. Ghosh*



## AUSTIN MANINDRA NATH GHOSH

1902-1961

AUSTIN MANINDRA NATH GHOSH was born in a renowned Christian family of Calcutta on the 14th June, 1902. His father, Manmatha Nath Ghosh, was a member of the Senior Bengal Civil Service. Austin Ghosh was educated in the Mission and Hare School in Calcutta, and scored a very high rank in the Intermediate Examination in Science at the University of Calcutta. He graduated with Honours in Geology from the Presidency College, Calcutta, in the year 1924.

During his college career, Ghosh was a regular member of the football and hockey teams, and had also joined the 2nd Battalion of the Calcutta University Training Corps. Soon after his graduation, he joined the Geological Survey of India, and in 1928 went to the United Kingdom on study leave, where he qualified first as an Associate of the Royal College of Science, and then completed the B.Sc. Honours Examination of the University of London in the First Class. Ghosh later acquainted himself with the various mineralogical and palaeontological museums located in France, Belgium, Germany, Switzerland and Holland.

### *Career in the Geological Survey of India*

During the twenties, it was not easy for an Indian to get recruited as an officer in the Geological Survey of India. So at the age of 22, Ghosh joined the Geological Survey of India as a Museum Assistant and was confirmed in the year 1925 in the same post. In attempting to better his service conditions he appeared at the Bengal Civil Service Examination in 1926, and qualified in the Junior Civil Service cadre and was posted to Chittagong. Dr. (later Sir) Lewis L. Fermor, the then Director of the Geological Survey, assured Ghosh of better prospects in the Geological Survey of India and advised him to decline the offer of a job in the Junior Civil Service of the Government of Bengal. In 1928, Ghosh was promoted to the rank of a Field Collector in the Geological Survey of India during which period he was trained by Dr. Guy E. Pilgrim in palaeontological work. Disappointment overcame Ghosh when on return from abroad in 1930, he was not offered the post of Assistant Superintendent (later called Geologist). He eventually got this post in 1935. In 1946, he was promoted to officiate as a Superintending Geologist, a vacancy created by Mr. E. J. Bradshaw, who was leaving on deputation to the Government of Burma. During the period from 1950 to 1952 he took over from Dr. P. K. Ghosh



Ghosh as the Chairman of the Coal Mines Stowing Board in addition to performing his duties as a Superintending Geologist which post he held until 1955, when he joined the newly created Oil & Natural Gas Directorate as its first Director. During most of his service as a Superintending Geologist, Ghosh held charges of the Central and Eastern circles of the Department comprising Madhya Pradesh and Orissa, and West Bengal, Sikkim, Assam, Manipur and Tripura respectively.

Ghosh was responsible in formulating a scheme for the setting up of the Oil & Natural Gas Directorate of the Government of India which was set up in 1955 under the then Ministry of Natural Resources and Scientific Research. He became the Director of this organisation with effect from 1955. When the Directorate was converted later into a Commission in August, 1956, Ghosh was appointed a Technical Member of the Commission.

Ghosh also acted as Oil Adviser to the Government of India which post he held until his untimely death at Calcutta where he came on a short official visit from Dehra Dun. He breathed his last at the Seth Sukhlal Karnani Memorial Hospital on the afternoon of Monday, the 2nd January, 1961. He left his widow and three sons.

Ghosh was kind and affectionate, severe when the occasion needed but at the same time considerate. He was a brilliant scholar with unusual memory. He had an untiring energy and used to work for long hours both in the office and at home. He was respected by seniors and subordinates alike. He had an unflinching faith in the performance of younger generation.

The Government of India in a Notification issued after his death recorded the appreciation of Ghosh's services thus:—

“On his passing away India has lost an able and trusted public servant who served his country with distinction in the geological field. . . .

The credit of achieving the results of the Oil & Natural Gas Commission's work in record time goes to him. . . . He had the gift of organization and of quick and sound judgement. He will long be remembered for his meritorious services to the cause of oil geology in India”.

The Soviet oil experts, in a condolence message to his family, expressed sorrow and paid respects to Shri Ghosh as ‘an eminent geologist and one of the founders of the oil industry in the public sector, and a good sensible and respected friend’.

The highlight of the geological work carried out by Ghosh was his work in the Salt Range, West Punjab; in Bihar, Madhya Pradesh and Assam. In Assam, he worked out in detail the stratigraphy of the Cherra sandstone series. He had also worked in the Khasi, Jaintia and Garo Hills. While working on the Myllem granite, he found certain cordierite and sapphirine bearing granites, as also worked out the detailed petrology of the granite. For a time he was responsible for the coal exploration work in the



Garo Hills where ultimately a reserve of 140 million tons of coal was proved by drilling. Field work in Assam in those days was fraught with much personal difficulties, but in view of his great physical energy, power of endurance and stubborn determination, he was able to map the geology of large areas till then geologically unknown.

In 1931, Ghosh carried out an investigation for Natural Gas in the Mymensingh district, East Bengal. He accompanied an expedition to the Mishmi Hills of the Assam Himalaya in the North East Frontier Agency in 1932. In 1932 and 1934, he was engaged in the investigations of the stratigraphy and palaeontology of the Salt Range, West Punjab, and he later worked in Assam between 1935 and 1939 in the Khasi Hills, and in 1950 in the Garo and Mikir Hills.

In 1932, Ghosh discovered new localities for fossilized remains of dinosaurs in Jabalpur and in Rewa, and had made a large collection of bones of these extinct reptiles in collaboration with Dr. C. A. Matley, an expert from the British Museum of Natural History, London.

As a result of detailed mapping and investigation, Ghosh felt that the Cherra sandstone showed lithological similarity to that of the Nummulitic stage. He concluded that the massive limestones of the Therriaghat area, together with the overlying plant-bearing sandstones of Lower Eocene (Ranikot) age, bridged the gap between the fossiliferous Upper Cretaceous and the Laki. This Upper Ranikot phase was partly represented by the Cherra sandstone on the Khasi Hills plateau.

From 1943 to 1945, he was in charge of the Government of India Mica Mines, Mahesri, Bihar, and acted as its Agent.

Ghosh mapped the Gneissic Complex of Nongmawit-Rambri-Nongstoin plateau of the Khasi Hills with a view to studying the varied rock types. As a result of his investigations, he concluded that the older rocks of the area were subjected to conditions of great heat and uniform pressure.

Ghosh discovered that an intrusive contact exists between the junction of the Shillong series and the granite gneiss of the Khasi Hills.

The investigation of Ghosh in eastern Sikkim, between Gangtok and Nathu La, to locate a source of limestone for cement for the construction of the high dam on the Tista gorge revealed an occurrence of marble, near Chhangu. The Chhangu marble was reported by him to be a metamorphosed impure limestone.

Geological investigations in Western Sikkim by Ghosh indicated that the average thickness of the coal seams was more than 1.8 metres.

During his field work in Sikkim, he had discovered the cause of the inversion of the metamorphic sequence there which he thought resulted from gigantic overfolds. He was also credited with the discovery of coal in Western Sikkim, and also supervised the work of junior officers of the Geological Survey of India, many of whom were initiated by him in field work in the area.



His merits shot to fame when he eventually joined the O.N.G.C. Under his guidance, the Geology Department was appropriately organised; hundreds of people were sent abroad for training in oil drilling and for studying the different aspects of geology encountered in petroleum exploration. His knowledge of the geology of India bore fruits when within three years of the existence of the organisation he planned the discovery of oil in Lunej and Ankleswar for the first time in India under the Public Sector. His extensive knowledge of the geology of Assam led the O.N.G.C. to the discovery of the Rudrasagar oilfield in Assam. Explorations for oil were also carried out under his direct supervision in the sub-montane tract of the Himalayan region and in the Jwalamukhi area where sizeable quantity of natural gas was found. Had his life not been terminated by an untimely demise, there is little doubt that many more oil producing areas could have been located in this sub-continent. Many of his schemes for oil exploration are now being applied to the desert area of Rajasthan.

#### *Foreign Visits, Deputation, etc.*

During 1952 Ghosh visited the U.S.A. under Point Four Exchange Programme to study the modern trends in geological research there. He also visited Oslo, Geneva and Zurich in the same year and familiarised himself with modern trends of research in those countries. In 1953, Ghosh visited Australia to attend the 5th Mining and Metallurgical Congress. During 1955, he accompanied Shri K. D. Malaviya, the then Minister of Natural Resources and Scientific Research, Govt. of India, to study the *modus operandi* of petroleum exploration in the U.S.S.R., as well as in U.K., Netherlands, Rumania and Sweden. He visited the U.S.S.R. and Switzerland again in 1960 to arrange for purchase of oil drilling equipment and also to bring technicians from the U.S.S.R. He had also arranged for the training of officers of the O.N.G.C. in other western countries.

#### *Honours and Awards*

A. M. N. Ghosh was elected President of the Geology and Geography Section of the Indian Science Congress in 1956. He was a Fellow of the Society of Economic Geologists. He acted as the honorary editor of the Transactions of the Mining, Geological and Metallurgical Institute of India. He was also a council member of the Geological Society of India, a Fellow of the Palaeontological Society of India and a Fellow of the National Institute of Sciences of India.

Ghosh was elected as the Vice-President of the Geological, Mining and Metallurgical Society of India in 1959-60, and, during the year following, acted as its President until his death.



Ghosh was given a posthumous award of the Pramatha Nath Bose Memorial Medal in 1961, by the Asiatic Society of Bengal, in recognition of his contributions to the cause of Indian Geology.

G. N. DUTT

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