He introduced scient

By H.S. Virk

RUCHI RAM SAHNI was born on April 5, 1863 in Dehra Ismail Khan, a small town near the Indus. He got his early education in this town and passed the middle school examination securing first position. His father died and the family was in dire straits to make both ends meet. Ruchi Ram however did not lose heart and made up his mind to continue his studies. He covered a distance of nearly 250 kilometres on foot, and got admission in the school of Adliwal near Jhang. He passed his high school examination from Lahore securing a position among the top ten. He passed the BA examination from Government College, Lahore, in 1884, securing the top position in Punjab University. Ruchi Ram was a great debater and took part in extra-curricular activities.

He took admission to a post-graduation course in physics and chemistry in Government College, Lahore. He was deeply impressed and motivated by Professor Oman, an experimentalist who built up science departments. Ruchi Ram then took assignment as Assistant Reporter in the Meteorology Department of India at Calcutta. Professor Oman advised him to complete his master's degree in Presidency College, Calcutta, which had excellent facilities for science education. Ruchi Ram got his training as Assistant Meteorologist, attended the required number of classes in Calcutta University and took interest in activities of Brahmo Samaj during his stay in Calcutta. He had the chance to meet and interact with top Indian scientists like Professor J.C. Bose, working in Presidency College. His interest in teaching and research got a boost in Calcutta. He served the Meteorology Department for two years under Sir H.F. Blanford in Simla and prepared 'daily' and 'monthly' weather reports. During his tenure, he made a remarkable forecast of a storm in the Bay of Bengal. He saved many ships from destruction by sending a timely warning to all sea ports in the region.

Ruchi Ram left Simla in March, 1987, and took over charge as Assistant Professor of Science in Government College, Lahore. When Professor J.C. Oman returned to England, he was given charge of the Department Chemistry. Ruchi Ram proved

A slice of history

to be a dedicated teacher and prepared his lectures in advance. His classroom lectures were supported by experimental demonstrations which made him a very popular teacher of science in the college. The head of the Department Chemistry, Professor Jones, an Englishman, became quite jealous of his popularity and tried to insult him on the slightest pretext. He even challenged Ruchi Ram to a teaching competition. When Ruchi Ram boldly accepted his challenge, Professor Jones withdrew. Ruchi Ram was a man of courage and conviction and never took things lying down.

When the situation became unbearable, Ruchi Ram decided to resign his post at Government College and start some chemical works in Punjab. However, that plan did not materialise. In the beginning of 1914, Ruchi Ram left for Europe to carry out research investigations in the emerging field of radioactivity. He reached Heidelberg and then moved to Karlsruhe to work in the laboratory of Dr Kasimir Fajans, an authority in the field of radioactivity. Dr Fajan interviewed Ruchi Ram and remarked that both of them were working on the same hypothesis, Dr Fajan had solved the problem of finding correct atomic weight of lead he suggested that Ruchi Ram should work on the problem related to bismuth. Ruchi Ram found the institute atmosphere congenial and inspiring for research. However before he could reach some conclusion, World War I started in Europe and he had to escape for his life to England.

In England, Ruchi Ram was fortunate to work in the laboratory of world renowned nuclear physicist, Lord Ernest Rutherford, in Manchester. Neils Bohr, another giant in the field, was his research collaborator. He published two research papers on scattering of alpha particles in photographic emulsion under joint authorship with Professor Rutherford. He returned to India as the situation was critical in the war-ravaged England. On reaching Bombay, he found that the packet of emulsion plates had got destroyed during transit. As a consequence, he could not continue his research investigations at Lahore and thus a brilliant scientific research career came to an end.

The idea of setting up the Punjab Science Institute (PSI) was conceived by Professor J.C. Oman of Government College, Lahore, when Ruchi Ram was still doing his post-graduation. During his Calcutta posting, Ruchi Ram had a chance to study the functioning of the Indian Association for Cultivation of Science (IACS) set up by Mahender Lal Sircar. The original aim of the PSI was the popularisation of all kinds of scientific knowledge throughout the Punjab by means of lectures illustrated with experiments and lantern slides. Later on, technical education and setting up of chemical industries in Punjab was also included. Pamphlets were written and circulated on the manufacture of soap, indigo and other products of common use. Some cash prizes were offered for writing short papers and pamphlets.

Professor Oman delivered several lectures on electricity and magnetism. Dr C.C. Caleb of Medical College dealt with common diseases. Dr Grant was a gifted speaker and made his lectures interesting by charts and illustrations. Ruchi Ram joined the PSI as Joint Secretary from the very beginning and took full charge of its activities after Professor Oman left for England. In fact, Ruchi Ram started his popular science lecture series while being posted at Simla in 1886. The theme of the lectures was weather forecasting.

The interest and enthusiasm generated all over the Punjab province (its boundaries extended from Delhi to Peshawar and included the present day Haryana, Himachal Pradesh and Pakistani Punjab) by popular science lectures of Ruchi Ram could be gauged from the demands received by the PSI for lectures, and from the fact

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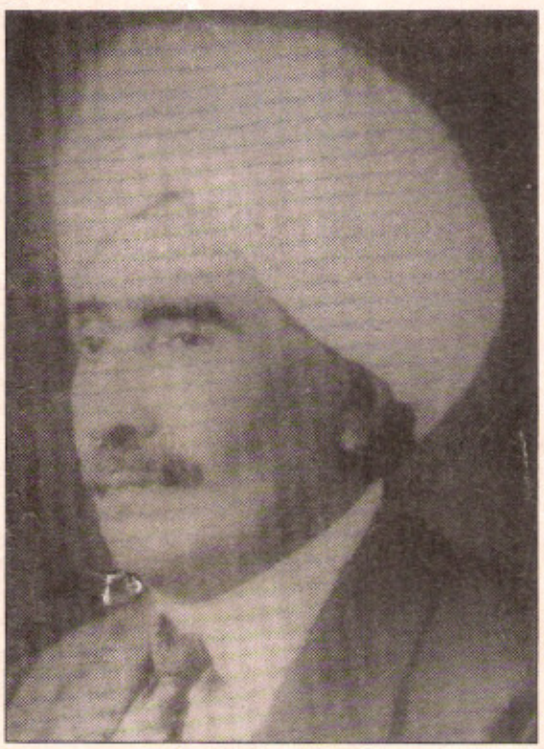
ific temper in Punjab

that it was even decided to charge a small entrance fee ranging from one to two annas (nearly 10 np) to cover at least part of the expenses incurred in sending lecturers generally accompanied by laboratory assistants and the necessary apparatus to illustrate the lecture. In 90 per cent of the cases, it was Professor Ruchi Ram Sahni who was called upon to respond to these requests for popular lectures — the reason being that he had delivered so many lectures at Lahore and in other towns of the Punjab that he was never at a loss for a topic, or the appropriate apparatus to illustrate it with. Ruchi Ram must have delivered some 500 such popular lectures in the Punjab.



Ruchi Ram Sahni

The most interesting features of popular science lectures was the audience, which consisted of rural and urban folk, shopkeepers and just a sprinkling of English-speaking clerks. There was no special lecture theatre or auditorium used for delivering these lectures. Ruchi Ram used the compound of the Baoli Sahib Gurdwara in Lahore to deliver an annual course of some 20 lectures in Punjabi language to the general public. Whenever Ruchi Ram found himself hunting for a correct Punjabi word or expression for a technical term, someone from the audience came to his rescue by providing an equivalent term in usage in the local dialect. Thus an unwritten dictionary of technical terms was created in Punjabi. The themes of his popular lectures covered a wide spectrum of topics devoted to common, everyday subjects such as "Soap-making", "The water Lahoris drank before 1880", "Pure and impure air", "Electricity in the service of man," "Electroplating," "Glass-making," "How does the telegraph speak," "The Punjab and its rivers" (illustrated by a large relief map made in clay) and so on. Popular science lectures were also organised in mofussil towns and villages on the occasion of festivals and fairs in open *pandals*. To make lecture attractive to the rural flok, they were projected theatrically. A nominal fee was collected on the spot after the show. These lectures created so much enthusiasm and interest in the study of science that by the end of the 19th century, the number of schools teaching elementary physics and chemistry in the Punjab was more than any other province of India.

Ruchi Ram had realised quite early that "no science teaching in the province was possible without the provision of ordinary facilities for the repairs of simple school apparatus". Despite financial constraints, Ruchi Ram went ahead with his mission and established a PSI workshop in 1888 in a corner of his house. He engaged a railway workshop technician, Allah Bakhsh, on part-time basis and simple items were sold to schools at the cost price, or even less to promote experimental skills among students and teachers. The small workshop grew into a full-fledged workshop and a manufacturing unit for 'locks and safes' and 'scientific equipment' of high precision when Ruchi Ram recruited Allah Bakhsh on full-time basis and put a lathe machine at his disposal.

The reputation of the PSI workshop grew so much that Ruchi Ram received invitations from all over India to participate and display his equipment at industrial exhibitions. At the 1906 Calcutta Industrial Exhibition, the PSI workshop was awarded a gold medal by the committee which included Professor J.C. Bose as one of the judges for the section on science exhibits. The equipment produced at the workshop cost less than half the price of the imported equipment. When the financial position improved, Ruchi Ram was able to gift simple apparatuses to schools and colleges in Punjab.

On his return from Germany, Prof Ruchi Ram Sahni had become involved in political and social movements in Punjab. He retired as a senior professor of chemistry from Government College, Lahore, in 1918 and fully immersed himself in the freedom struggle being waged against the British Empire by the Congress. He was deputed by Mahatma Gandhi to visit Guru ka Bagh Morcha (Amritsar district) in 1921 where Sikhs offered non-violent resistance to the British and won the battle for possession of Gurdwara. Ruchi Ram was so much involved in Sikh affairs of his time that he gave an eye-witness account of Sikhs' struggle for liberation of their religious shrines in his well-documented book *Gurdwara Reform Movement*. Ruchi Ram was a founder Trustee of *The Tribune*, which started its publication from Lahore. He was a founder member of Dyal Singh College and Library, also set up in Lahore.

Professor Ruchi Ram Sahni had five sons and three daughters. They were all highly educated and one of the sons, Professor Birbal Sahni, was the founder-director of the Birbal Sahni Institute of Paleobotany (BSIP) in Lucknow. One of his grand sons, Professor Ashok Sahni, FNA, is Professor of Geology in Punjab University. Punjab owes much to Ruchi Ram who introduced scientific temper and culture in the Punjab. Ruchi Ram Sahni died at the age of 87 on June 3, 1948, in Bombay.

9-63