RESEARCH INTERESTS OF PARAMJIT SINGH, SCIENTIST-G AND DIRECTOR, BOTANICAL SURVEY OF INDIA (BSI) AND ARCHIVAL COLLECTIONS IN BSI

For over three decades I am doing taxonomic research in Botanical Survey of India on various aspects of wild and naturalised plants including taxonomic revisions, ethnobotanical studies and conservation of live plants as well as historical material. As review of historical records is an essential part of taxonomic research, my interest is also in the indian natural collections housed in different parts of the world. During travel throughout the country and sixteen countries of W Asia and Africa, I have noticed a steady decline in interest, both subject wise and financial grant wise in herbarium based basic plant taxonomic research. Even important historical collections are being neglected. These collections are an important source of information on distribution and phenology. My personal interest is in trying to the correlate historical phonological changes in certain group of plants and if there is any correlation with the climate change. Another aspect of interest is in the grasses and bamboos of India, temperate flora and Indian medicinal and useful plants.

The Botanical Survey of India (BSI) was established in 1890 at Calcutta, with Sir George King (then Superintendent of the Royal Botanic Garden) as its first ex officio Director. The basic objective of the Survey at that time was to explore the plant resources and to identify the plant species with economic virtues. The survey had inherited a rich legacy of botanical activities and development left by the pioneering efforts of R. Kyd, W. Roxburgh, W. Griffith, N. Wallich, Buchanan-Hamilton, H. Falconer, J.F. Duthie, R. Strachey, J.E. Winterbottom, W. Moorcroft, J.F. Royle and others, who had contributed significantly towards the development of Royal Botanic Garden (now AJC Bose Indian Botanic Garden) and the Central National Herbarium. Almost simultaneously regional centres at Saharanpur (Northern region), Poona (Western region) and Madras (Southern region) were also established, with the establishment at Calcutta also covering the Eastern region.The survey, however, became almost quiescent between 1934 to 1954.

Realising the importance of plant resources, the reorganisation of the BSI was initiated in 1952 with Dr. E.K. Janaki Ammal appointed as Officer on Special Duty on 14th October 1952, to draw up plans for the same. On 29th March, 1954 the Government of India approved the plan of reorganisation with Headquarters at Calcutta.

The present activities of BSI include:
Documentation of plant diversity at national, regional, state, district and ecosystem level, Documentation of indigenous knowledge of plant resources

- Maintaining national botanical collections and museum exhibits centrally at Central National Herbarium, Howrah and Indian Museum, Industrial Section, Kolkata and Eleven Circle Offices located in different regions of India.
- Cultivation, multiplication and *ex situ* conservation of threatened, endemic and economically important species,
- Pharmacognostic studies on species listed in Schedule VI of the Indian Wildlife (Protection) Act, 1992; Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Negative List of Export (PN-47),
- Capacity building in taxonomy,
- Environmental awareness and education,
- Environmental Impact Assessment on flora
- Digitization of herbarium specimens,
- Advisory services in the field of identification, distribution, status and *ex situ* conservation of plant species,
- Dissemination of scientific information related to different aspect of Indian flora.

Archival Collections in BSI

In Central National Herbarium of BSI in Kolkata there are c. 6000 botanical paintings more than one and half century old which include sketches and partially or fully coloured water colour paintings prepared with the help of Indian artists. Important one to mention is original set of Roxburgh's 2595 life-size coloured drawings of plants. Dr. William Roxburgh, a Scottish physician, called as the Father of Indian Botany, whose drawings formed the basis of Hooker's Flora of British India and many subsequent works on Indian Plants. There are fine collections of very valuable orchid paintings and sketches numbering over 1500 executed by the native artists under the supervision of colonial botanists. Some of the finest Orchid paintings were done during the period of Dr. Hugh Falconer (1847-1855). These paintings speak for their antiquity, value and scientific of a bygone era. Some of the artists involved were Lutchman Singh, Gopal Dass, Kali P. Das, A.N. Banerjee and others. These paintings have deteriorated due to acidity and are in very fragile condition. Therefore their preservation in electronic form is necessary. Moreover, most of these treasured collections still remain unpublished. Biographical sketches of the artists are yet to be collected and published. It will involve cataloguing and documentation

of the history of the paintings and the artists involved the correct identity of each one of them, their restoration and preservation and publication of a book and storing in CD. The process involves scanning the images at high resolution. As the Roxburgh's illustrations are also catalogued with a reference to the relevant Flora Indica page number. In Central National Herbarium Library, there are many archival materials (c. 1000 rare manuscripts like Roxburgh's manuscript of Flora India, Wallichian correspondences) in fragile and deteriorated condition. Therefore, cataloguing and scanning of the archival materials in electronic form is the only method by which these can be saved. There are a variety of items included in the archive materials such as long letters, hand written manuscripts, old books, botanical paintings, press cuttings or notes. In I.S.I.M., there are many rare holding like Forbes Watson's "Textile Fabrics of India" (18 Vols., 1866) and *Textile manufactures and embroideries* (12 Vols.), Thomas Wardles *Fabrics Dyed with Indian Dyes etc.* are in fragile and deteriorated condition. Moreover, Watt's manuscript (Ledger), the basic data sources for publication of *Dictionary of Economic Products of India* (8 Vols.) and the *Commercial Products of India* are arranged systematically and maintained in special 1,100 boxes. These manuscripts presently are in fragile condition and are being scanned.