

THE DEHRA DUN HERBARIUM

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The herbarium of the Forest Research Institute & Colleges, Dehra Dun, known internationally as the DEHRA DUN HERBARIUM (DD) is composed of the Forest School Herbarium started by J. S. Gamble in 1890, and the erstwhile Saharanpur Herbarium merged with it in 1908. The School Herbarium was started with Gamble's own duplicates from Madras and Bengal together with his extensive collections from places around Dehra Dun, as part of teaching aids at the Forest School. The herbarium received many collections from the officers trained at the School and was further enriched by the private herbaria of some enthusiastic forest officers presented to the School. It was considered more practical that the Saharanpur Herbarium which was mainly under the additional charge of the Civil Surgeon, be merged with the ever-enlarging herbarium of the Forest School at Dehra Dun. Since the amalgamation in 1908 to date, the collection numbers total to ca 325,000. The oldest specimens collected by Dr. George Govan dating back to about 1816. Immense amount of labour has been put in, mainly by Duthie and Gamble in bringing together a good representation of the flora of the North-Western region of the Indian sub-continent. Many of the specimens, specially the earlier ones, are of great

value in botanical work, quite a few of them are sometimes being 'Types'.

Saharanpur Herbarium : Dr. George Govan, Civil Surgeon, Saharanpur, was appointed the first Superintendent of the Botanic Garden in 1816 in addition to his own duties. It was established on the site of an old, 16 ha. dilapidated local garden which was founded by Zabita Khan, an eminent administrator and son of Najib-ud-Doula with the revenue of seven villages for its maintenance. Govan collected plants mainly in the adjacent Sirmoor State which is now part of Himachal Pradesh.

Dr. J. F. Royle succeeded Govan in 1823, and like his predecessor, combined the duties of Station Surgeon with that of Superintendent of the Gardens. Royle himself collected in the adjacent Himalaya and trained local collectors to be sent into the hills for plants and seeds. Royle's collectors went as far as Kashmir under the guidance of shawl dealers. As there was no proper herbarium at Saharanpur, Royle took the bulk of his collection to London where he completed his masterly work entitled "*The Illustrations of the Botany of the Himalayan Mountains*". Royle's herbarium which was considered to have been lost, has been discovered and safely lodged in the Liverpool Public Museum.

Dr. Hugh Falconer succeeded Royle in 1831 and like his predecessor, sent collectors to the hills, and with trading caravans to Kashmir and Ladakh. Falconer himself collected as far as Gilgit. Most of his collections were sent to the India House in London and some were left behind at Saharanpur. His labels carry details about localities written in Persian or Devanagari script by his Indian collectors. Falconer is famous for his studies of the Siwalik rocks and bones.

Dr. William Jameson succeeded Dr. Falconer in 1842 and continued till his retirement in January 1876. Upto Jameson's time the Superintendents of the Saharanpur Garden were all medical men appointed as Station Surgeons and for the purpose of botany their accent was mainly on collecting economic plants. He would collect if a demand reached him, but not determine what he collected. Jameson collected plants from time to time mainly from Hawalbagh in Kumaon and the labels written by his collectors are mostly in Persian script. His contribution in the field of economic botany is the establishing of the tea industry in Dehra Dun and Kangra. Besides tea, he introduced potato in Simla hills and flax for fibre. During Jameson's 33 years of service in Saharanpur there were several periods of leave. In one of them Dr. J. L. Stewart (author of Punjab Plants) acted; in another Dr. King.

After Jameson's retirement in 1876 the post of Superintendent went outside the Medical Service. Mr. J. F. Duthie, Professor in the Agricultural College at Cirencester was appointed as his successor. He became the first Director of the Botanical Department of Northern India and unlike his predecessors, he was able to devote his time entirely to botanical work. He retired in December 1902.

Duthie was a man of strong taxonomical

interests and immediately after taking up the new assignment, set to work, putting the older collections in order. He toured extensively during summers and collected plants from the Himalayan regions in as diverse places as Jumnotri, Gangotri, Kumaon, West Nepal, Tibet Frontier, Garhwal, Kheri, Gonda, Bahraich, Bijnor and Pilibhit in U.P.; Ajmer Merwara, Mount Abu in Rajasthan; Chanda, Nimar, Nagpur and Jabalpur in Madhya Pradesh; Ambala, Hissar & Multan. He accompanied the forestry students on tours in the Siwaliks, Dehra Dun, Jaunsar-Bawar and Garhwal.

Duthie selected youngman from the garden staff and trained them as plant collectors. Inayat Khan and Harsukh are mentioned by Duthie as becoming very experienced and efficient. Harsukh and Inayat did a very commendable work when they accompanied Gen. Gatacre on a military and other expeditions to Chitral, Baluchistan, Gilgit, Waziristan etc. They have been commemorated in *Cardamine inayatii*, O. E. Schulz; *Impatiens inayatii* Hook. f.; *Primula inayatii* Duthie and *Isatis harsukhii* O. E. Schulz.

Specimens from other border regions and military expeditions like the Pamir Boundary Commission, and the Afghan Delimitation Commission were collected by Capt. Dr. A. W. Alcock, J. E. T. Aitchison, Capt. Harris (all Army surgeons), Francis Younghusband and many more officers of the Army. Duplicates of most of their specimens (including some Types) are available in the Herbarium.

Duthie started a fresh series of his numbers in 1883 and continued them to 25929 in 1901. Prior to this, he collected extensively but some of his plants were numbered and others not. His collectors Inayat and Harsukh used the same series of numbers as Duthie and it appears that the plants were

numbered later, on their arrival to Saharanpur, since the dates of collection do not follow the numbers regularly. Thus Nos. 8 and 13 bear 10th June 1883 as the date of collection whereas Nos. 1 and 2 were collected on 14th June. Sometimes letters were used in addition to numerals for the same species collected in different places on different dates. Nos. 1016, 1016a and 1016b for example are all *Lathyrus luteus* Baker, but different dates and places. In some other cases Duthie's collections bear the same numbers as of some other collectors for the same plants from the same localities, but different dates and years. For example :

- No. 8533 *Pennisetum alopecuris* Steud. Khandwa dist. 22.12.88, (J.F.D.)
 and 8533 *Pennisetum alopecuris* Steud. Khandwa dist. 28.12.88 (A. E. Lowrie).
 9958 *Eriochloa annulata* Kunth, Chanda dist. 20.8.89 (A. E. Lowrie)
 9958 *Eriochloa annulata* Kunth, Chanda dist. 29.11.89 (J.F.D.)
 4979 (a) *Panicum fluitans* Retz. Merwara. Sept. 84 (A. E. Lowrie)
 4979 (b) *Panicum fluitans* Retz. Bhim, Merwara 12.1.86 (J. F. Duthie)
 8464 *Andropogon schoenanthus* L. Asirgarh. Khandwa. 28.12.88 (A. E. Lowrie)
 8464 *Andropogon schoenanthus* L. Piplode, Khandwa, 9.12.88 (J.F.D.).

All the labels pertaining to these are written in Duthies' own writing.

Duthie published his monumental work, "Flora of the Upper Gangetic Plain and of the adjacent Siwalik and Sub-Himalayan Tracts" and also the Fodder Grasses.

During Duthie's time Gamble was vigorously building up the Forest School herbarium at Dehra Dun. He was also collecting exotic garden plants which were often neglected by other collectors. Many of these have been of considerable interest as showing the date of introduction and source, particu-

larly in the case of Bamboos. Duthie contributed largely to the School Herbarium and also taught botany to the Rangers. A good collection of trees and shrubs was brought by Instructors especially U. N. Kanjilal and his students during their tours to places where they went. Several private herbaria made by Forest Officers were presented to the School, viz. by Smythies, Gustav Mann (Assam) and J. C. McDonell (Kashmir). By exchange a number of Australian plants were received from Baron Von Mueller.

Since 1890 from the time of Gamble, till today, the herbarium has been headed by a succession of eminent botanists who have played a notable part in the development of Indian Forest Botany and enriched the herbarium with their collections. Mr. H. H. Haines was appointed to the post of Imperial Forest Botanist in 1905 when the School was raised to the status of an Institute. Haines is known for his "Botany of Bihar and Orissa" R. S. Hole succeeded Haines in 1907 and in 1908 the Saharanpur Herbarium was amalgamated with the Herbarium of the Forest Research Institute. Hole worked on grasses, both from ecological side as indicators for soil and the economic side as sources of fodder and paper-pulp material. R. N. Parker took over from Hole in 1922 and continued till 1932. Parker immediately set about the proper arranging, naming and mounting of the material received from Saharanpur. He himself collected plants in Kumaon, Burma, Kulu and Bashahr, Etawah, North Bengal and brought extensive collections containing several new genera and species which were later described by him. In 1929 a botanical party headed by B. L. Gupta collected in West Nepal, and published an interesting list of plants collected during the expedition. Unfortunately, Gupta was taken seriously ill and had to be brought back. "Forest Flora of the Siwalik and Jaunsar Forest Divisions,

U.P. 1928" an edition for which Gupta is remembered, is the revised and enlarged version of the earlier Forest Flora of the School Circle originally published by Rai Bahadur Upendranath Kanjilal in 1901 and 1909. In 1924 Parker took the opportunity of revising the first edition of his "Forest Flora of the Punjab with Hazara and Delhi" and also published a popular illustrated booklet "Forty Trees Common in India". C. E. Parkinson formerly Forest Botanist, Burma, succeeded Parker in 1932. He brought with him a large collection of specimens from Burma. He later became known for his "Forest Flora of the Andaman Islands". N. L. Bor succeeded Parkinson in 1937. Bor conducted surveys of the timber resources of the evergreen forests of Bombay and Madras and enriched the herbarium with his extensive collections from there as well as from Lahul, Assam, Sikkim, Manipur and Tibet. He published Vol. V of the Flora of Assam on Gramineae and "Common Grasses of the United Provinces". N. L. Bor's eminence in Taxonomy, especially the grasses, has been recognised by his appointment after retirement from India, as Assistant Director at the Royal Botanic Gardens, Kew where he published his lifetime's work "Grasses of Burma, Ceylon, India and Pakistan", besides his "Manual of Indian Forest Botany". Bor had also trained Kirat Ram as his collector and most of their sheets bear the name, Bor and Kirat Ram.

Bor left the Institute in 1942 during the days of the Second World War on various political assignments in the eastern hills. M. B. Raizada became incharge of the Systematic Botany Section in 1942 and later took over as Forest Botanist in 1948 after India's Independence. His prime interest was in systematic botany, nomenclature and taxonomy of grasses. Upto the time of his retirement in 1962 Raizada had described several new

genera and a large number of new species, particularly as additions to the flora of Upper Gangetic Plain. By that time he had also established himself as an authority in Indian Gramineae and also in the nomenclature of Indian plants. His 15 years after retirement from the Institute have been utilised most fruitfully—as a Principal of the local Post-Graduate College for nearly 10 years. He has now published a Supplement to the Duthie's Flora of Upper Gangetic Plain.

Expeditions have been sent out from this Herbarium to various places which were wholly or partly *terra incognita*. In 1952 K. C. Sahni participated in an expedition to the Great Nicobar Island to explore the forest wealth of that region for commercial exploitation. He also accompanied as a botanist the California Academy of Sciences Expedition to Panch Chulhi. He has also explored areas close to the India-Tibet-Nepal border and Tehri Garhwal in 1954, 1955 and 1956 to prepare an account of the medicinal plants. He has collected in Arunachal Pradesh close to the Chinese border. Likewise, the author, who had his initial training at Stewart's Herbarium in Rawalpindi (now in Pakistan) accompanied an American Medico-Botanical Expedition to the Chhota Banghal region of Kangra in 1955 and a Finnish Botanical Expedition of the University of Helsinki to Kulu Valley in 1972. During the various holiday trips the author collected on the pilgrim routes to Amarnath Cave and Liddar Valley in Kashmir in 1954, 1956, 1960, Badrinath, Hemkund and Valley of Flowers in 1957 and 1959. Also a preliminary survey trip was undertaken to Ladakh in 1969.

After Raizada's retirement K. C. Sahni took over as Forest Botanist and the herbarium was vastly enriched with collections from various under-explored regions like the Union Territory of Goa, Daman and

Diu, Arunachal Pradesh, Ladakh etc. for the preparation of Forest Floras of these regions.

The Dehra Dun herbarium now contains approximately 525,000 sheets and is recognised as one of the finest in Asia, being specially rich in grasses. It includes about 1200 Type materials. Besides a good representation of the Indian flora, the collection contains specimens from all over the world. In recent years, large collections received from the Governments of Afghanistan and Burma have been identified at Dehra Dun. There are notable old collections by Dr. Brandis, A. E. Lowrie, A. E. Osmaston, U. N. Kanjilal, P. C. Kanjilal, Keshvanand, J. E. T. Aitchison, Stocks etc. and the duplicates of Dr. R. R. Stewart's collection from various unexplored regions of what is now West Pakistan, are valuable possessions. The herbarium has also a valuable collection of Cryptogams. Exchange relations are maintained with important herbaria all over the world and as a result of this, large number of specimens are added to the herbarium every year.

The collections have been of inestimable value to various specialists, scholars and monographers in the preparation of regional floras. Several of the important contributions

to Indian Forest Botany have emerged from this Herbarium. The following important works which were wholly or partly prepared with the help of Dehra Dun Herbarium are: Parkinson's Flora of the Andaman Islands; P. C. Kanjilal's Forest Flora of Pilibhit, Oudh, Gorakhpur and Bundelkhand; Flora of Assam by U. N. Kanjilal and Das; Bor's "Common Grasses of the United Provinces"; Mooney's "Supplement to the Botany of Bihar and Orissa"; "Beautiful Indian Climbers and Shrubs" by Bor and Raizada; "Forest Flora of the Punjab" by Parker; "Forest Flora of Chakrata, Dehra Dun etc. and its revision by Gupta"; Duthie's original "Flora of the Upper Gangetic Plain", and its Supplement by Raizada. Gamble's monumental work on "Indian Timbers" is backed by the corresponding voucher specimens. K. C. Sahni as an officer on deputation has published "Trees of the Northern Sudan" a publication indirectly concerned with this Herbarium.

A fully air-conditioned modern herbarium building on the pattern of Kew and Edinburgh herbaria is fast coming up within the Forest Research Institute Campus and the herbarium will be shifted to the new site sometime in 1979.