

BOTANICAL GARDENS IN THE U. S. S. R.

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A B S T R A C T

In the system of Scientific Botanical Gardens of the Soviet Union, there are 91 Gardens located in different climatic zones. These Gardens are important centres of research for scientific studies of plant introduction, acclimatisation, drought and frost resistance and other problems and are provided with well equipped laboratories. The Gardens are also recognised post-graduate training centres. The impressions gathered by the author during a recent visit to some of these well known Gardens of the Soviet Union are briefly recorded in this paper.

The system of Scientific Botanical Gardens occupies a prominent place in the botanical studies in the Soviet Union. At present there are 91 scientific gardens in the Union, not to speak of the innumerable parks and gardens for recreational and ornamental purposes which one finds in practically every town. These botanical gardens which are located in every kind of climatic zone ranging between the arctic Tundras and the Middle Asian deserts are primarily meant for the introduction of new material from various parts of the world. They serve also as centres for research in problems of plant introduction, particularly, in regard to acclimatisation and drought and frost resistance. The gardens are provided with well equipped laboratories and are recognised post-graduate training centres. There is an extensive seed exchange programme among these gardens and with gardens in other parts of the world and every major garden publishes its 'Delectus Seminum' every year. Some of these gardens are very old and have had a long history like the Leningrad Botanic Garden whose origin dates back to the time of Peter the Great, the Tbilissi Botanic Garden which has been mentioned in the writings of Tournefort in the 17th century and the Nikita Botanic Garden of Crimea which recently celebrated its sesqui-centennial, while the others are comparatively new having been established in the post-revolution and post-second world war periods. The scientific work of all these gardens is coordinated by the All Union Council of Botanic Gardens which has its headquarters in Moscow.

During a recent visit to the Soviet Union as a member of the Delegation of Indian Botanists under the scheme of scientific and cultural exchange between India and the U.S.S.R., the author had the opportunity of visiting some of these well known gardens and the impressions gathered are briefly recorded in this paper.

The Leningrad Botanic Garden today occupies a unique position among the botanical gardens of the world. Its glass houses whose length alone measures upto 1 km. accommodate 3000 species of living plants obtained from various parts of the world. The major portion of the garden as well as

the collections were destroyed during the war and it is remarkable that during the past sixteen years the glass houses have been brought back to their full strength from fresh gatherings. We saw growing here such rare and curious plants like *Alsophila australis*, a tree fern from Tasmania, *Drynaria coronans*, a large epiphytic fern from China, *Stangeria paradoxa* of the Cycadaceae, native in Australia and Africa and *Brachyglottis repanda*, a tree-like Compositae from New Zealand, to name only a few and an excellent collection of conifers, orchids, palms, cacti and other succulents etc.

The Botanical Garden of the Georgian Academy of Sciences in Tbilissi (the ancient city of Tiflis) is another garden with a long history. It is considered to be at least 300 years old. The garden occupies an area of 156 hectares along the slopes of a hill overlooking the city. The garden has been organised on the geographical basis and in the Himalayan section we saw some excellent specimens of *Cedrus deodara*. An innovation of the garden is the location of a separate section known as the 'Living Herbarium' in which the wild Caucasian plants are being grown. In this section more than 2500 species are represented out of the estimated 6000 wild species in the Caucasus.

The Nikita Botanic Garden in Nikita along the Crimean coast about 15 kms. from Yalta is another well established garden which recently celebrated its sesqui-centennial. This garden was founded in 1812 by Duke Richelieu with the help of the great Botanist, K. K. Steven and has served the important role as a centre for the trial of seeds received from distant parts of the world. The garden has been responsible for giving a large number of plants to Agriculture and Horticulture in the country. It has also served as a nursery for the many parks and gardens of Crimea. There are several Departments with well equipped laboratories and the scientific work done at the garden can be judged by the fact that more than 2500 papers have been published during its 150 years of existence. This garden suffered also considerably during the German occupation. Here the arrangement is on an ornamental basis and the plants of similar kind are grouped together though originating from

different countries and geographical zones. Many fine specimens of Gymnosperms are found in the garden and a beautiful specimen of a Lebanese Cedar (*Cedrus libani* Loud.) attracts one's attention on entering the garden (Fig. 1). A giant specimen of a 70 year old *Sequoiadendron giganteum*, a beautiful pendulous form of *Cedrus atlantica* (Fig. 2), a 100 year old *Sequoia sempervirens*, the oldest *Sequoia* in Crimea, the Crimean endemic, *Pinus stankeviczii* with abundant cones, the graceful *Pinus montezumae* with arching branches and the relict Crimean endemic *Arbutus andrachne* of the Ericaceae were some of the trees of interest we saw in the garden. A huge *Platanus orientalis* tree now 150 years old was stated to have been planted on the day the garden was founded.

Among the gardens of comparatively recent origin which we visited are the Main Botanic Garden of the U.S.S.R. Academy of Sciences in Moscow, the Central Botanic Garden of the Uzbekistan Academy of Sciences at Tashkent, the Ukrainian Academy of Sciences Botanic Garden at Kiev and the Botanic Garden of the Byelo-Russian Academy of Sciences in Minsk. The Main Botanic Garden of Moscow was organised in 1945 immediately after the war by Academician Prof. N. Tsitsin who is also now the Chairman of the All Union Council of Botanic Gardens. The garden occupies an area of 360 hectares and is laid out around a native *Quercus robur* forest. There are sections devoted to the various geographical zones including one for the flora of the Soviet Union. Though the garden is of recent origin, an elaborate system of glass houses has been organised and here we saw some excellent collection of orchids, ferns, palms, cacti and succulents, Gymnosperms and other groups of interesting plants from all corners of the world. We saw here some living specimens of *Welwitschia mirabilis*, the plant of great botanical interest from South West Africa, many exceedingly nice specimens of *Nepenthes hybrida*, the curious peg-like buttons of *Lithops leicheana* of the Ficoideaceae from Africa and several orchids in bloom.

The Tashkent Botanic Garden is a remarkable example of how much could be achieved in a short period of time by competent and devoted work. The garden was established only in 1951 but under the able guidance of its Director, Prof. F. N. Rusanov and the unstinted cooperation of his highly competent staff, the garden has already attained an eminent position among the gardens of the Soviet Union. It is not yet open to the public as some sections are yet to be completed. There are several sections devoted for floras of foreign lands which are already well stocked and among these are the North American, China and Far East, European, Mediterranean, Caucasian sections, but the most interesting one is the 'Flora' section in which the Middle

Asian plants are being grown. Out of the estimated 6000 native species in Middle Asia, 900 species have already been brought here and it is hoped to ultimately grow 3000 of the wild Middle Asian species in this section. Another interesting feature of the garden is the demonstration section in which plants of biological interest, particularly, for school children are grown. As in the case of other well known gardens in the Soviet Union, one important activity of the Garden is in the production of new varieties of decorative plants. The Tashkent Garden has already given a number of new varieties of decorative plants to the parks and roadside flower beds of the City of Tashkent. The Garden has a wonderful collection of Tulips built up by Mme. Rusanov and some of the latest varieties obtained by her have been named after the Soviet Cosmonauts. There are nearly 2000 varieties of Roses and the Director is keenly interested in the breeding of new varieties of *Yucca*, *Hibiscus* etc.

The Kiev Garden was founded in 1946 and has 200 hectares of ground. It is located in a picturesque site along the Dnieper River. The garden has been organised on the geographical basis and has special sections of Decorative Plants, a Syringarium and a Rosarium in addition to the Dendrium. The garden specialises in fruit trees and we saw some very interesting methods of training the apple and peach trees to enable them to withstand the severe winter conditions.

The Minsk Garden was established in 1932 in a native Pine forest but was almost completely destroyed during the German occupation and only 5 out of the 60 scientific workers of the Garden survived the war. It has now been rebuilt with laboratories, glass houses etc., and the several sections are also well stocked. At the time of our visit, the garden was under a thick mantle of snow. The Syringarium has all the world's 26 species.

The excellent mild climate that prevails along the Black Sea coast has been taken advantage in setting up a series of Gardens which specialise in sub-tropical plants. Among these gardens, the most important are those at Batumi, Sukhumi and Sochi. The Batumi Garden has a beautiful setting on a slope which reaches the Black Sea coast. The climate here is humid and it is one of the wettest places in the Soviet Union with the annual rainfall ranging between 2500 and 3000 mm. The Garden was founded in 1912 and occupies an area of 108 hectares. A special section of the garden deals with the flora of Adjara, one of the autonomous Republics within Georgia, in which Batumi lies. The Adjarian Flora is particularly rich in relict and endemic species. The Batumi Garden is also an important training centre for practical instruction in sub-tropical cultures. Several Eucalypti are in cultivation here as also many sub-tropical palms,

In one part of the garden, the natural vegetation has been preserved.

The garden at Sukhumi in the Abkhazian Autonomous Republic of Georgia S.S.R. is a beautiful one. It was established in the year 1840 by General Reivssky, a friend of Puschkin. The garden occupies an area of 8 hectares and is very well laid out. It is very rich in sub-tropical exotics. This garden first successfully introduced the Gutta Percha tree, *Eucommia ulmoides* of the Eucommiaceae which has now been planted extensively. Among the Gymnosperms, a peculiar method of training the branch of *Cryptomeria japonica* which assumes a leaning posture was of interest. An elegantly trimmed shrub, *Pittosporum heterophyllum* Franch., from China was found near the statue of Nestor Leikova, the first Prime Minister of Abkhazia at the entrance to the Garden (Fig. 3).

In the Black Sea health resort of Sochi, well known for its Sanatoria and Rest Homes, there is a large Dendrarium which at present has more than 1600 species of trees and shrubs. Sochi lies at the northern limit of the sub-tropical zone and the rainfall varies between 1200 and 1400 mm. per year. The Garden is a very popular one and is visited by nearly a million people every year. There are introductions from the various climatic zones of Asia, North and South America, Europe, Australia and New Zealand. The tall closely branched trees of *Cupressus sempervirens* var. *pyramidalis* which almost taper to a point attract one's attention on entering the Garden (Fig. 4). These trees are nearly 30 metres tall and are among the tallest trees of the Black Sea coast. There are many other

interesting trees and shrubs in the Garden like *Pittosporum tobira* from China, *Arbutus unedo* of the Ericaceae, the Strawberry Tree from the Mediterranean, *Garrya elliptica* of the Garryaceae and many gymnospermous genera, *Cupressus*, *Metasequoia*, *Taxodium*, *Thujopsis*, *Tsuga*, *Pseudotsuga* etc.

One of the highly interesting gardens we saw during the tour was the Alpine Botanic Garden of the Botanical Institute of Tbilissi located at Bakur-yani in the Trialetian Range of Central Georgia. Native Caucasian and Central Georgian Mountain plants are being grown here in a two and half hectare plot and nearly 800 genera including many endemic and relict species are found in this Alpinarium.

The above account gives a general idea of the organisation of Botanical Gardens in the U.S.S.R. which in addition to providing aesthetic pleasure, serve also an important role in the economic progress of the country and in the higher scientific pursuits of research workers and students and thus contribute in a large measure to the welfare of the people.

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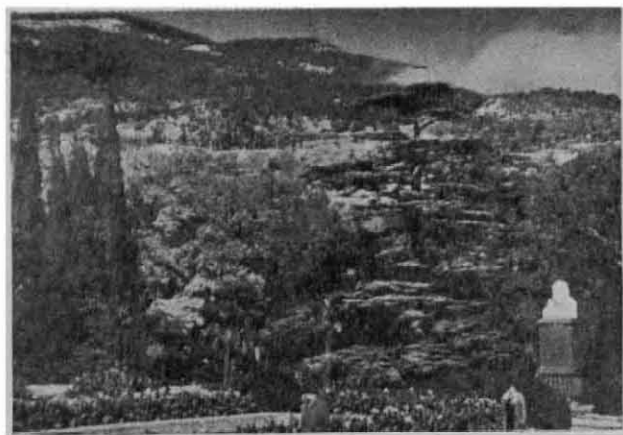


FIG. 1. *Cedrus libani* Loual., the Cedar of Lebanon at the entrance to the Nikita Botanic Garden, Crimea.



FIG. 2. *Cedrus atlantica* Man. var. *glauca* forma *pendula* with pendulous branches in the Nikita Botanic Garden, Crimea.



FIG. 3. Sukhumi Botanic Garden. *Pittosporum heterophyllum* Franch. near statue of Nestor Leikova.



FIG. 4. *Cupressus sempervirens* Linn. var. *pyramidalis* in the Dendrarium, Sochi.