

# Horticultural Research in China

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Attention to horticultural scientific research is accelerating throughout the world. There is a new awareness of its value in serving the needs of human welfare. In China, horticulture and horticultural plants are being investigated intensively for practical purposes.

It is claimed that China is a world leader in reforestation. During the past 30 years, much of the predominately treeless land has been transformed into young forests. In traveling by train or by air from Peking westward and south to Canton the mountainous terrains and valleys are solidly planted with young trees if not given to agricultural use. The plants used were for the purpose of filling such practical needs for human survival as fuel, food, wood for furniture and tools, and medicinal products. The vast scale of these plantings is awesome to behold and because it is possibly beyond their means for a pest control system, fertilization, or other maintenances, the plants chosen are tolerant of the existing environmental conditions of each particular site, insect and disease resistant, drought tolerant and with minimum maintenance demands. The Chinese are also intensively experimenting with biological control. In one case, where the workers in a rice field were suffering from the use of insect sprays, they found that equally good insect control could be achieved by frogs. Multitudes of frogs were introduced and it became forbidden to kill one. And in China, the word "forbidden" is respected.

The average tourist comes away from China appalled to see trees so thickly planted along thoroughfares, small lots, streetsides, or wherever there is any available space. Young trees 15 to 25 feet high may be planted a mere three feet apart with all lower branches removed. Visitors do not realize that this practice serves as supplementary nursery stock. These plantings are thinned out as the trees are transplanted to other areas such as: "in the north China area where sandstorms are frequent and soil erosion severe, they are planting a forest shelterbelt covering 5.3 million hectares (over 13 million acres). A magnificent Great Green Wall will appear by 1985"\* and "will eventually cover 200 million acres."\*\*

The people of China live in neat but very crowded conditions and at the same time have a strong love for plants and flowers. Compensation lies in the numerous large areas of beautifully landscaped public parks. From overhead, the parks seem to be teeming with people. However, artful landscape designs have created a succession of cul-de-sacs walled with trees and flowering shrubs, which permit privacy for family groups amidst the crowd. Public buildings, hotels, and even railroad stations are extensively planted with showy displays of ornamental plants.

Unfortunately, language barriers impede the advancement and extension of horticultural information among the Chinese botanists and taxonomists. The people of China's 50 provinces speak just one of nearly as many dialects (the Manchurian dialect is now being taught throughout China to provide a common

\* "Peking Review" 48, December 1978

\*\* "Celebrations of Life", Rene DuBos, 1981

language). Further, during the Cultural Revolution many horticultural scientists and botanical garden personnel were sidetracked to work in the fields on problems of a practical nature. So it seems that although the overall level of horticultural scientific work in China, with the exception of some special institutions, may be less than Western standards, their practical exploitation of horticultural plants for the survival of the people is far in advance. In the U.S., primary effort is given to research on the production of horticultural plants and products. In China, equal or more emphasis is given to the utilization of plants to provide basic needs.

Most issues of the China Pictorial include an illustrated article covering some phase of their horticultural research. The following is typical: (China Pictorial #1, 1981)

"The Chinese gallnut has long been used in traditional medicine to stop bleeding, kill pain, cure dysentery and counter-act inflammation. Now, with the development of modern science, its range of uses is becoming increasingly wide.

"The gallnut's tannin and pyrogallol are used as a catalyzer and stabilizer in fuel for space rockets. Its tannin can also be made into an anti-corrosive paint needed by ocean-going vessels and, perhaps even more significantly, used for the separation and precipitation of such active rare metals as uranium, thorium, niobium and neodymium. The synergist made from its tannin has been accepted in medical circles as a promising new drug, which, if used together with sulfonamide antibiotics, can increase their efficiency from ten to several dozen times. The gallnut's tannin is also used in the manufacture of quality fancy leather and as a mordant which gives the dyes a strong affinity for synthetic fibres. The pyrogallol obtained from it is an important developing agent used in making cinematic colour films and a desulphurizer employed in chemical industries. Chemists use its tannin as a reagent to detect a number of trace elements and its gallic acid as an inseparable intermediate to make synthetic drugs and dyes. In sum, chemicals extracted from the Chinese gallnut are being increasingly used in petrochemical, metallurgical, chemical, machine building, pharmaceutical, sensitive material, new-type plastics, light industrial and food industries and in scientific research institutes working in national defense." All of this from a gallnut!

These gallnuts are not nuts as such but swellings of plant tissue on the Chinese sumac trees and caused by parasitic gall aphids. Ten types of gallnuts are produced by different aphid species. A traditional Chinese farm by-product, they have in recent years developed a successful business for purposes described above by large scale cultivation of the sumacs and systematic raising of the aphids. This demonstrates another scientifically based horticultural achievement.

Further horticultural activity will be covered at a lecture to be given by Alan P. Godlewski, Missouri Botanic Garden in October 1982, Northwest Ornamental Horticultural Society Lecture Series.

The University of Washington Center for Urban Horticulture is the first academic unit in the U.S. to provide research and graduate teaching on the utilization of horticultural plants. A combination of the Western approach to sophisticated scientific research and the Chinese approach to practical solutions serving human needs offers great advantages. The Northwest Ornamental Horticultural Society has a concentrated interest in supporting this effort.

# *Horticulture Northwest*

Journal of the Northwest Ornamental Horticultural Society



*Cornus canadensis*

Volume 9

Number 3

Fall 1982