

Seiridium Blight of Cypress—Another Ecological Disaster?

Make yourself an ark of gopher wood.—
Gen. 6:14

If we believe that western civilization was born on the eastern shores of the Mediterranean, then its cradle stood in the shade of a sacred tree: the cypress.

The tall, statuesque Mediterranean cypress (*Cupressus sempervirens*), whose flame-shaped canopy once adorned the Persian temples of the fire worshippers, watched over the endeavors, the rites, the artistic expressions, and the very life of the Mediterranean peoples. It became a symbol of the most profound values of their civilization.

Having spread from their centers of origin by natural means or having been planted by migrant peoples, cypresses were soon to become part of the Mediterranean landscape. In Asia Minor they covered the mountain slopes during biblical times and were chosen as the emblem of wisdom (*I was exalted like . . . a cypress tree on Mount Zion. Eccles. 24:17*) and of the moral rectitude of the just man who stands *as a cypress tree rearing itself on high* (Eccles. 50:11). During Roman times, cypress continued to be regarded as a holy tree in the *luci* (the sacred woods) and around the altars, temples, and funeral monuments, representing immortality and transcendence.

The cypress is extremely long-lived (it may survive for more than 2,000 years), and its wood resists woodworms, rot, and deterioration. For these reasons, cypress wood was considered imperishable and it was widely used in constructions exposed to inclement weather and in shipbuilding (Homer's *Odyssey*, Solomon's *Canticle of Canticles*). The portals of the temple of Diana in Ephesus and those of St. Peter in Rome (removed after about 1,000 years), the tables of Athenian Public Law, the gates of Constantinople, and the statue of Jupiter on the Capitol were made of cypress wood, and so were Alexander's fleet and Trajan's ships, which were found intact in Lake Nemi after 1,800 years. Cypress wood, which has a very fine texture and is slightly resinous, was once chosen for making trousseau chests in which brides' linens were perfectly stored. One of the earliest reported uses of the now common agricultural practice of seed treatment dates back to A.D. 60, when Pliny suggested using wine and crushed cypress leaves

to protect seeds from storage pests.

Cypress trees are easily identified in some of the world's oldest paintings by their characteristic symmetrical beauty and slender outline. During the Renaissance, cypress was included in the works of the greatest masters, from Beato Angelico and Paolo Uccello to Leonardo da Vinci and Domenico Ghirlandaio. In Roman and medieval times, the cypress was widely used in gardens, reaching its most splendid expression in Renaissance parks and in the landscape gardening of the 17th and 18th centuries. Nowadays, cypress is still a major element of the countryside in many areas, including southern France, central Italy, Greece, and the Aegean Islands. Cypress trees embellish gardens, villas, and roads throughout these regions. Local people and visitors alike regard these trees as true plant monuments, and many trees have witnessed the ebb and flow of human activities through hundreds of human generations. Moreover, they easily grow in hilly areas and in poor, arid soils and are commonly used as windbreaks where citrus and other subtropical crops are grown.

Yet, in the last 50 years the cypress has been dying. A mortal enemy has violated its century-long immunity against diseases. A microscopic fungus, *Seiridium cardinale*, which caused serious outbreaks of an epidemic canker disease on Monterey cypress (*C. macrocarpa*) in California in the 1930s, has spread to other parts of the world. First reported in southern France in 1944, it has since spread through stands of cypress in many European and Mediterranean countries. For instance, in the province of Florence in Italy 18 years ago, the disease had attacked or killed more than one-fourth of the existing trees (about 4 million). By now, the disease has not only spread through Greece to the coast of Turkey but has even reached the British Isles.

The pathogenic fungus spreads via spores that may be carried by insects, birds, or windblown rain. The spores reach cracks or crevices in the bark of the tree, germinate, and penetrate the living tissues. Toxins produced by the pathogen seem to be involved in causing the expression of symptoms. At least 1 year, but often longer, is required for an infected tree to die. Death occurs in steps,

progressing from yellowing and necrosis of leaves to formation of cankers on branches and stems in areas of the tree initially infected by the fungus.

Although the pathogen is thought to originally be of Asiatic origin, it may have accidentally arrived in the Mediterranean region on imported infected Monterey cypress.

This brief story reveals yet another deadly scenario of what may be the demise of another of the world's extremely important forest species. It is not unlike the devastation that was wrought with the accidental introduction of Dutch elm disease and chestnut blight to the United States and Europe. The latter disease resulted in the loss of every American chestnut stand in the United States, and the former caused billions of dollars of damage to forest and recreation elms throughout the United States and Europe. Both of these diseases resulted from the introduction of a pathogenic fungus from one part of our planet to another, not unlike the *Seiridium* blight of cypress.

Although the application of fungicides may be useful in controlling *Seiridium* blight in isolated, important, single trees and in nurseries, such methods are impractical in the vast open expanses of the Mediterranean landscape. Clearly, what is needed is a major international effort to develop methods of disease control, starting with the production and planting of cultivars or clones resistant to the disease caused by *S. cardinale*, as well as to a similar canker disease caused by a congeneric fungal species, *S. cupressi*, recently introduced in the Mediterranean area from Africa. Urgent action is needed before it is too late.

If cypresses vanish from the hills of Florence, Olympia, and Delphi, it would be as if famous masterpieces were removed from the Uffizi, the Louvre, and the Metropolitan Museum of Art. Like the works of human genius, these artworks of nature are part of everyone's heritage. We cannot stand by apathetically to witness the demise of the Mediterranean cypress owing to our inaction and insensitivity.

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