Plant Prosthetics: Artifice in Support of Nature

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In the wild, trees seem to do rather well all by themselves. That is, some of them do rather well; you know, Darwin and all that. But in constructed settings, urban or suburban, they seem to need some help just to get by. So we irrigate them, protect them from getting gnawed, buffer them from being bumped, spray them against insects and rot—and we prop them up. The debate still rages whether staking is a good thing (aiding the tree in its struggles to withstand the attacks of wind and vandals during their adolescence) or a bad thing (creating a dependence on the artificial support that hampers the development of the tree’s own natural systems). Whichever side of the argument you land on, the fact remains that staking accompanies the planting of almost all trees. And like it or not—except perhaps within the realms of those sufficiently wealthy to purchase large and mature specimens—for many years the visual impact of the stake will dominate that of the tree. The French landscape architect Alexandre Chemetoff understood this and used it to aesthetic advantage in his hillside plantations for a motorway intersection near Toulouse. Rather than deny their presence, Chemetoff painted the stakes a bright blue; paired with the colored polyethylene used to retard erosion and weeds, the strong diagonals of the staking arranged on a grid became the principal features of the design [figure 1].

Supports may be delicate and almost diaphanous or stout and sturdy. The schools of staking vary from the single—whether vertical or diagonal—the paired, and the tripod and quadrupod. And how the supports connect with each other and with the tree varies from a manner that accepts sway and movement as a part of growth and one that ranks stolid rigidity above all else. The selection of form appears to depend on the budget, the size of the tree, and the number and degree of hazardous conditions [figure 2].
The single stake represents an optimistic gesture; one encounters many a fallen, broken, or missing stake that accompanies—or accompanied—many a fallen, broken, or missing tree. Dual staking, with rubber-covered leads, bolsters the trunk just as two friends support a drunkard [figures 3–6]. It is strong along one axis, but weak when faced with perpendicular forces. Certainly it is no match for an errant automobile or the nonchalance of an inattentive garbage-truck driver. Schools of application range from the sturdy vertical to the angled and more tensile.

The tripod configuration starts getting serious in locations like Tokyo and other urban areas where the edge between sidewalk and road is barely apparent [figures 7–9]. These tend to be constructed of stout wooden poles, wired
or nailed together, with no pretense of naturalness. But they are also made of metal, some of them so tall that they double as spatial markers and entryways. Like the crutch and the knee-brace these are prosthetic devices that use the artificial to improve the natural. The quadruped is the heavy duty, industrial-strength version of the tripod, exceeded in muscle and effect only, perhaps, by devices of stainless steel that give no quarter to any oncoming vehicle [figure 10]. Darwin and all that, you understand.

Arboreal prosthetics address a variety of needs: to support the tree during its early years, often to counter problems incurred by the demand for quick growth; as compensation for a structural weakness, perhaps caused by mannered horticultural practices; in periods of decline; and as life-support in advanced age, countering senility in the twilight years. Staking is most commonly practiced during early adolescence, however, suggesting the parents’ handholding of the child, or their protecting it from cold, hunger, and the elements. Props also compensate for weakness due to infirmity, for example re-erecting a tree fallen in a storm or one undermined by insects or erosion.

Then there are the prosthetics necessary to certain horticultural practices—Japan is the great example here. Cultural norms coerce the Japanese gardener and arborist to treat the vertical mass of the tree as a series of masses horizontally defined. To accomplish this look, branches are trained and pruned, needles thinned and shaped. The resulting sub-masses of the trees are exposed and inherently frail, a limitation multiplied enormously when applied to the
pine family. Unlike the denuded branches of deciduous trees, in winter the clumps of evergreen pine needles catch and clutch volumes of snow, and their accumulated weight threatens to snap the branches from their trunks. To thwart this threat elaborate laceworks of (traditionally) rice-straw ropes support the branches from a central pole or trunk [figure 11]. The resulting structure is visually splendid, a carousel-like tent whose tawny hue contrasts eloquently with the deep green of the pine needles.

Coats made of rice-straw matting complete the winter garments worn by Japanese trees [figure 12]. Around the base of the trunks the mats serve double duty: protecting the trunk from bumps and scrapes and—it is claimed by Japanese gardeners—tempting boring insects with a more easily penetrated target. At season’s end, these are removed and tossed away, vermin included. Matting also protects the tender tops of cycads whose fronds are cut back each winter to protect them from frost [figures 13, 14]. The logic of these multi-layered constructions is verified by their parallels with the structures constructed by termites in humid
climates with heavy rainfall: the stacked roofs continually eject the water and prevent it from running down the full length of the mat and into the tree, which may cause rot.

Against heavy vehicular or pedestrian traffic or during construction, existing vegetation requires protection for it to survive. Prosthetic appliances protect the trunk, the canopy, or both. Plywood boxes guard the trunks against unintended thuds from forklifts and bulldozers, while pervious sheets of plastic mesh defend leaves and branches from the knocks of cranes or careless workmen [figures 15–17]. Each produces its own aesthetic, an aesthetic at times verging on the threshold of art, whether the minimal “specific objects” of Donald Judd or the wrapped landscapes of Christo and Jeanne-Claude.

Mature trees in their sunset years often require supports in order to endure, like the pensioner requiring the aid of a walker or a cane. Perhaps the trunk has been attacked by borers or fungus, perhaps key branches have been lost to lightning or to encroaching development, perhaps the depleted circulation system no longer keeps the trunk and branches sufficiently turgid. Support is required. And in cultures that venerate longevity—China and Japan, for example—the tree is treated as an honorable member of the family. In these situations one often encounters the wooden or metal post. But one also finds the cultural urge to disguise the prosthetic effort, as if the tree would be embarrassed by such reinforcement. Or is it an attempt to make the unnatural appear natural? In any event, in these situations one may encounter a field of posts, each directly reacting to the drooping force of gravity, in some ways a ghost duplicating the field of tree trunks themselves.
Wrapped up in this nursing of weakness, then, is the relation of the natural to the artificial. Most prosthetics make no bones about being constructions. In material and in form they stand apart, functionalist in approach and vocabulary. They stand to serve, not to blend, and there is little question as to which is the tree and which is the structural addition. In China, however, detecting which is which may be difficult. For some reason, posts of concrete are modeled or cast to emulate the pine trunks they support [figure 18]. So realistically are they modeled that after years in place, colored by layers of dirt and discoloration, they look exactly the same as the real trunks. There develops a second forest of concrete trunks that shadows the living forest of brown bark and green needles: a forest of the artisans’ efforts rather nature’s. The results can be almost unnerving. In the Yu Yin Shan Fang garden in Panyu, near Guangzhou, the post supporting an aged Araucaria cunninghamia was so realistic that it was easy to confuse the living with the made [figure 19]. Perhaps this is the ultimate prosthetic effect—a creation so authentic in its guise that it becomes indistinguishable from its host. More than prosthetic, construction is akin to what plastic surgery is to the human face or body—an artificial creation that appears to be natural and real. Real, without a doubt; natural, not really.

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