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TREES IN THE TOWN ENVIRONMENT¹

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The theme *Tree Care Keep Our Nations Green* is an especially meaningful topic for me for it bids me recall the truly blessed conditions I was fortunate to grow up in in Philadelphia's Fairmount Park. Child of the city perhaps, but I was most at home hiking, riding and running among the great oaks, hemlocks and tulip poplars of the Wissahickon woods, my favorite section of the largest city park in the world. Such a theme works upon one's memories like the pebbles we used to toss into the reflective surface of the Wissahickon Creek, rippling in ever-widening circles of meaning and significance. "Tree care" in Philadelphia was synonymous with "brotherly love," and so the creation of the parks and the appreciative recognition of the thousands of trees which were distinctive landmarks of an equally distinctive city began with Philadelphia's inception.

One of the deeply influential moments of my life took place at the base of a huge oak tree in the Wissahickon's "Carpenter's Woods." Waterlogged and tired from my adventures with tadpoles and waterskeeters, I sat down beside my father who was looking up into an oak's arching branches. Spotting a squirrel's nest, I eagerly searched for the squirrel and asked questions of my father, as only children ask questions. But instead of replying, he pressed an acorn into my palm and silently pointed to the trees which towered above us. As I fingered the deep bark fissures which flowed in wondrous mazes down into flaring and knuckled roots a kind of oak tree educational osmosis occurred. It was then that I learned one of the most important lessons of a lifetime: the acorn, the tree, the leaves, the nest of leaves, the unseen squirrel, my father and

I were suddenly interrelated and one. A small child had made the connection, one might say, and it is this connection which we ultimately serve: as arborists, landscapers, arboretum directors, researchers and educators, we are the guardians of this precious relationship between the tree and its universal significance for all of us who grow beneath it.

Upon a finite planet where it is reported that our human population expands at the rate of twelve people per hour and open spaces shrink at the rate of 60 acres per day, the value and benefit of trees and parks in the town environment is inestimable. Yet today it is common to observe widespread decline and losses within the nation's forests. Roger Ulrich in his Longwood Program Seminar study "Urbanization and Garden Aesthetics," estimates that more than 95% of the American population is functionally urban — directly or indirectly dependent on cities and towns on a day-to-day basis. At a time when we are depending on them most, our towns and cities are becoming intolerable, and the once "inviting" human environment, as described in Elias and Irwin's *Urban Trees*, "is transformed into a somewhat forbidding one." It has been observed that the total annual town-tree losses for the U.S., for example, add up to an alarming 5%. Main Street, U.S.A. is sadly typified by this scene on Main Street in Burlington, Vermont. Burlington's graceful tree-lined streets transformed overnight into stark, often dangerous, auto-dominated highways evinces in the fullest sense what shade tree decline can mean for a community. Towns all over the U.S. from Wiscasset, Maine to Waukegan, Illinois are

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Fig. 1. The University of Vermont Campus Green approximately 35 years ago (Photo courtesy U. Vt. Archives).



Fig. 2. The University Green today (Photo courtesy University Photo Service).

suffering similar losses. The scarred landscape which remains represents again and again how tree losses combine with weak or non-existent town-tree ordinances to create a blight far worse than any arboreal disease.

The Elm Research Institute estimates that we are losing over a million elms alone each year to Dutch Elm Disease, and numerous other disease and insect problems take their toll. Even the great hemlocks of the Wissahickon, and thousands of hemlocks throughout southeastern Pennsylvania are seriously threatened by unchecked insect infestations involving at least two known pests, *Abgrallaspis ithacae* and primarily, *Fiorinia externa*. Equally destructive, though in a more subtle and insidious fashion, are what Dr. Alex Shigo has dubbed the "people-pressure diseases," the many debilitating environmental stress factors which both cause and result in the decline and demise of many city trees. We are all familiar, for example, with the fact that due to limited city budgets all but a very few town trees are ever watered, fertilized, or pruned regardless of need. It should not surprise us, therefore, that "we," according to Dr. Francis Holmes, Director of the Shade Tree Laboratories in Amherst, Mass., are "the most damaging pathogens." Our poor planning and subsequent negligence of shade trees predisposes them to the expensive and saddening destruction we lament at a later date.

But who is responsible we might ask ourselves. Jane Holtz Kay, architecture critic of "The Nation" makes this distinction which perhaps

gives us part of the answer. She notes that "in Europe there are municipal water trucks and gardeners to take care of city trees; in free enterprise America, it's a free-for-all."

Not only the older established shade trees suffer, but new plantings and "preserved groves," in which new communities are carved, suffer as well. We've all seen it: just outside of town, the charming new condominium and mall complex, "Meadow-Wood Estates" they might be called, and all the wonderful birches and oaks which the contractors so carefully spared, up to the "D.B.H.'s" in fresh new fill, easily covering the scars where the cats came and went and the hardpan soil where the dozers parked when shade was at a premium. The doomed trees are stately looking though, softened by the rolling sod of Meadow-Wood's new meadow.

But who *is* responsible for tree care in our nations? Might we not assume even more



Fig. 3. A tree lined street in Burlington, Vermont approximately 90 years ago (Photo courtesy U. Vt. Archives).

responsibility by joining with community beautification and civic groups in pressing for tougher town-tree ordinances? In conjunction with such efforts, might we not offer our professional services as consultants *before* tree problems develop; before our moonlit counterpart approaches our best customers, chainsaw in hand assuring them "I'll take care of that tree."

Serving as Extension Director for the Elm Research Institute during this past year, I often commented that I regarded our nationwide DED losses as a problem which is really symptomatic of a much more serious problem confronting American society today. Jane Holtz Kay puts it another way. "In the deepest sense," she says, "tree troubles are culture troubles." Dr. Richard Lighty, Director of the Longwood Program in Ornamental Horticulture, laments what he describes as the "desensitization of people to the joys of their evolutionary habitat, and a rapid and ever-changing sensitization to things that some man or some institution can supply." Ironically, all of these observations add up to the realization that we *need* trees in the town environment now more than ever before. We need trees of all sizes, shapes, and varieties, in all situations, to stop us; to make us mindful of the price we too often pay for progress and the unfortunate efficiency of rushing through life; to humble us and remind us of the rest of life, that vast and varied community to which we belong, and to re-sensitize us to what the English poet William Wordsworth extolled in his *Tintern Abbey* "the joy of elevated thoughts and sense sublime whose dwelling is one and the same in all of nature and in the mind of man."

The mysterious joys of nature and the development of the human intellect were never more richly and fully explored than in the late Dr. Loren Eiseley's *Immense Journey*. It seems to me fitting to honor this naturalist, anthropologist, poet, and long-term resident of Philadelphia as we reflect upon some of his thoughts and apply them to our understanding of the theme of this convention. I am quite sure that were Dr. Eiseley here with us today, he would agree that Philadelphia's trees were often important agents of discovery along the route of his "immense journey." For Eiseley

the journey always returned to where he began, revealed the same two-fold discovery:

... that we are all potential fossils still carrying within our bodies the crudities of former existences, the marks of a world in which living creatures flow with little more consistency than clouds from age to age

and that the mind and its comprehension of life's experiences and mysteries and most of all "its projection of itself into other lives" is the "lonely magnificent power of humanity." To project oneself "across a dimension of space," a dimension one is not "fitted to traverse in the flesh," to be capable of such an extension of vision is, as Eiseley describes, "the supreme epitome of reaching out." Such is the significance perhaps of an acorn in the hand of a child.

Aldo Leopold's *Sand County Almanac*, published posthumously in 1949, three years after Eiseley's *Immense Journey*, speaks, too, of man's enlightened transcendence through nature, which results not only in one's heightened awareness of the "biotic community" to which we belong, but in a truer knowledge of ourselves. It was Leopold's conviction that the human community had been and was still capable of growth and an ever-increasing sensitivity to the rights of humankind and the rights of all living things. We have another important step to make in this respect, Leopold believed, for the twentieth century world suffers at the hands of a human community and its limited land ethic of "economic self interest." Leopold argued, "the land relation is still strictly economic, entailing privileges but not obligations."

For Leopold our conversation efforts of today comprise the embryonic stirrings of our developing "ecological conscience." But we find, however, that even in the business of tree care, our social consciousness has been seriously lacking in the past. The beech bark disease threat, for example, is a case in point. Economic self-interest interpreted the value of the American beech forests in terms of their marketable value — dollars and cents. Thus the epiphytotic nectria canker problem (*Nectria coccinea faginata*), which may soon threaten ornamental beeches all



Fig. 4. We need trees to stop us; to make us mindful of the price we too often pay for progress and the unfortunate efficiency of rushing through life . . . Main Street, Burlington, Vt. (Photo courtesy U. Vt. Photo Service).

over the East, was not checked in its progress, but was welcomed instead as a culler of weed trees. That the beech had an intrinsic value all its own, providing beech nuts to wildlife, from rodents to bears and contributing importantly in building soil fertility, for example, did not figure in the balance. The beeches were useless, utterly non-marketable for the paddles, panels, picnic tables, and swizzle sticks of a growing nation with its renewable American dream and no deposit-no return lifestyle.

If we agree with Leopold that it's a matter of developing our social conscience to include a new land ethic in our daily doings, if we can, in fact, look forward to the next step in our social and moral maturation, then this tree care business, in which we all play a part, is of critical importance. We must assume increasingly more active roles in arboriculture practices, for the planning and programs we are developing now are at the forefront of a sorely needed new ethic. Many organizations and efforts already have assumed such active roles. Philadelphia's Fairmount Park "Free Tree Program"; the Pennsylvania Horticultural Society's "10,000 Trees Bicentennial Project;" and Minneapolis' "The First Step" tree preservation program, to name just three projects, will go a long way towards preparing present and future minds for the sensitization to all that lives on this earth. Tree care is at the center of a complexity of social needs in

our urban and village environment today; these problems must be studied and their solutions explored right here in our own backyard.

Again recalling my childhood experiences with trees, I can vividly recollect the springtime plantings in and around my own backyard, how my father and mother (both landscape architects) encouraged all of their children to join them in the perennial soil, seed and seedling rituals which provided for many of our family's treasured trees and shrubs. Whenever I return to the area, I look for those trees and to my amazement many of them tower today, changing yet enhancing the setting I never imagined as a child.

Tree planting is as much a part of "Tree Care" as is the recognized necessity of providing for and maintaining our already-planted shade trees. Here again is an important activity in which our varied ISA professions should seek active participation. Arborists, landscapers, and educators, for example, can effectively join forces with community beautification groups in promoting Arbor Day celebrations in our communities, providing school children with the "sensitizing" experience of planting a tree. At the University of Vermont "Project Elm," (an organization made up of students, faculty, arborists and community volunteers) has been responsible for the planting of over 450 trees throughout many Vermont villages and towns. We're most proud of a new tradition "Project Elm" has established there, "the birthday tree time." A youngster plants a small tree on his or her birthday and then returns to the tree the following year for a celebration and, as one child lovingly put it, "a race to see who'll be taller, the tree or me."

Ultimately the care of trees in our living/working environment can become one and the same with the joy of discovering what life is all about. Those discoveries are invariably both humbling and ennobling as Annie Dillard relates in her discussion of the tulip tree in *Pilgrim at Tinker Creek*:

There's a real power here. It is amazing that trees can turn gravel and bitter salts into these soft-flipped lobes, as if I were to bite down on a granite slab and start to swell, bud, and flower. Trees seem to do their feats so effortlessly Every



Fig. 5. "The birthday tree time . . . a race to see, who'll be taller — the tree or me."

year a single tree creates absolutely from scratch ninety-nine percent of its living parts. Water lifting up tree trunks can climb 150 feet an hour; in full summer a tree can, and does, heave a ton of water every day. A big elm in a single season might make as many as six million leaves, wholly intricate, without budging an inch; I couldn't make one. A tree stands there, accumulating dead-wood, mute and rigid as an obelisk, but secretly it seethes; it splits, sucks, and stretches; it heaves up tons and hurls them out in a green, fringed fling. No person taps this free power; the dynamo in a tulip tree pumps out ever more tulip tree, and it runs on rain and air . . . The trees especially seem to bespeak a generosity of spirit. I suspect that the real moral thinkers end up, wherever they may start, in botany. We know nothing for certain but we seem to see that the world turns upon growing, grows towards growing, and

growing green and clean.

Like man at the apex of the animal kingdom, trees are at the apex of the plant kingdom. They represent in all their botanical specialization, in weakness and strength, both the peril and promise of their existence. In a sense they are patterns of our being, as we discover in this poem about elms, written by my friend and colleague, Margaret Edwards of the University of Vermont.

Elms

*These awesome silhouettes.
Consider their shapes
as patterns
of what we come to be:
how we thrust up with such
thick confidence,
all bark and sap
in childhood, but age
by branching.
Our first arms
hold the lover,
we divide again
for children,
and proliferate ourselves
abundantly
in works and friends.
All through us for years
the spirit forks
and reorks, pointing
us in the direction
of grace, stretching
us into leaves.
We fill our solitary lives
and when we have become
ourselves
we lift our great fans
in the light, delicate
strong and dying.*

The importance of truly caring for trees in the town environment is, no doubt, a conviction we all share. We wouldn't be in this profession if we didn't. But this fact itself cannot mitigate the numerous problems which challenge us in our work at the present time. The task of preserving our remaining shade trees and providing for new

thriving urban and village forests is now more difficult than ever. It's a challenge we must meet head on, however, and in full cooperation with one another; for tomorrow's solutions to today's struggles will be tried by citizens, researchers, educators, and arborists alike, working together on interrelated problems which will require all the skill and energy we can collectively muster. Both as professionals and as people we must seek more active roles in preserving and providing for trees in the town environment for the trees are, in a sense, living embodiments of our "supreme epitome of reaching out." We are in turn like the trees; we flourish best and reach our greatest heights, aspiring heaven-ward, yet rooted in earth which is home.

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ABSTRACTS

Baumgardt, J.P. 1977. **Suitable soils: structures and characteristics**. *Grounds Maintenance* 12(4): 80, 82-83, 85-86.

The soils that gardeners work with are complex mixtures of living and nonliving materials. In these materials some substances are mineral and others are organic, which means that they once were or still are part of a living organism. Since soils suitable for gardening contain moisture in which various minerals and organic substances are dissolved, we cannot call this liquid soil water but rather soil solution. Since all soil originates with rock, the parent rock is an important consideration. Topsoil is the upper layer of soil which contains some amount of organic residues; it is aerated and well drained due to the porosity. Subsoil, on the other hand, is largely mineral in composition, it is compact and thus, scarcely aerated and drains slowly. Soil atmosphere is air that has diffused down into the soil. Soil air is rather low in oxygen as micro-organisms and root hairs use it up, but high in carbon dioxide because this gas is produced by metabolic activities of plant roots and micro-organisms.

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The Occupational Safety and Health Act of 1970 became effective on April 28, 1971. That date marked the end of another protracted battle between business and labor interests. Clearly, numerous legal issues arise under this Act which are of vital concern to employers. This is a short summary of what you, as employers, can do to protect yourselves from becoming entangled in the intricacies of OSHA. But be forewarned, this is not a do-it-yourself course in how to avoid OSHA problems. It is not a substitute for a sound health and safety program and appropriate legal advice.