A man in a dark suit, white shirt, and patterned tie stands outdoors next to a large, dark bronze sculpture of a bear. The bear is in a walking or standing pose, with its head turned slightly. The man is smiling and has his right hand resting on the bear's paw. The background shows some greenery and a clear sky.

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Facilities Manager

Volume 11 Number 4

FALL 1995

*Vision,
People,
and Process*

APPA President
Doug Christensen



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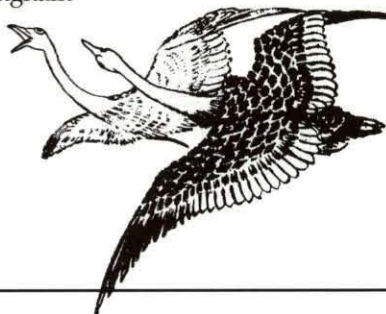
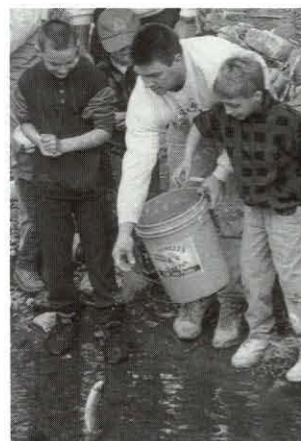
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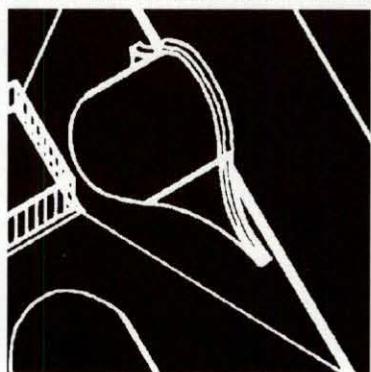
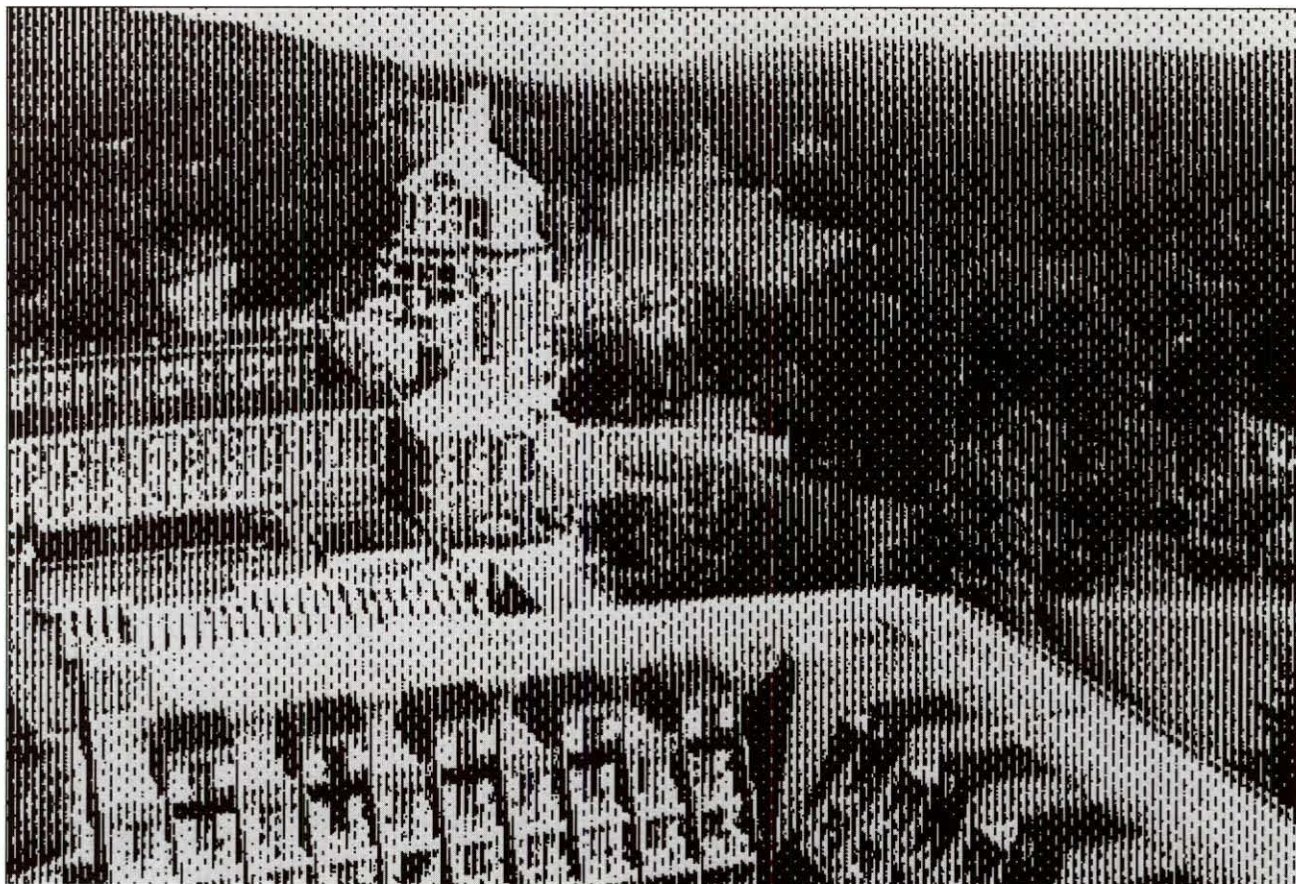


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EDITOR: Steve Glazner

EDITORIAL CONTRIBUTIONS: Medea Ranck

ADVERTISING: Stephanie Gretchen

SUBSCRIPTIONS: Cotrenia Aytch

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EDITORIAL OFFICE: 703-684-1446

FAX: 703-549-2772

E-MAIL: steve@appa.org

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From The Editor

Steve Glazner

Have you taken a look at what is new on APPANet lately? Since introducing the Web site at the July educational conference in Philadelphia, usage has steadily increased. According to our latest statistics, APPANet has averaged about twenty-five "hits" per day (or one per hour). For those of you with World Wide Web capability (such as Netscape, Mosaic, or Chameleon), the address is <http://www.appa.org>. We urge you to set APPANet as your system's default.

APPA's World Wide Web home page is still under construction, but we add new and revised information regularly. For instance, we have provided links to Web sites maintained by university facilities organizations (thanks to Oklahoma State for their original collection). It is fascinating to see what members have included for their customers: campus maps, photos and descriptions of buildings, staff lists and phone numbers, policies and procedures for work management, announcements of building closings and construction or renovation updates, and much more.

You can easily send an e-mail message to an APPA staff member, and you can also link to other associations of interest, such as the National Association of College and University Business Officers, the Society for College and University Planning, and CAUSE, the association for information technology in higher education. On APPANet you will find summaries of recent issues of *Facilities Manager* and *Inside APPA*, as well as information on advertising a facilities position in *Job Express*. You may search for information listed under key topic headings. If you are a member, you can review the membership directory and look up the institution or e-mail address of a fellow member.

Additional information accessible through APPANet includes upcoming educational programs such as the Institute for Facilities Management, criteria and procedures for the Facilities Management Evaluation Program, Government Relations Updates, listings and descriptions of new APPA publications and information kits, and vendor/supplier information from the ranks of APPA's Subscribing Members.

Future services will include abstracts and summaries of APPA publications and educational programs, as well as reports and data from the Experience Exchange survey, Comparative Costs and Staffing Report, and other surveys and programs.

Separately, APPA has created several discussion lists on topics of interest to our members. These are open access and allow members to post queries, respond to questions, and share their policies or experience with others on a similar subject. The new listservs are:

- * ENERGY (energy and utilities issues)
- * CONSTRUCT (planning, design, and construction issues)
- * LEADER (facilities administration and leadership)
- * INFOEXCH (information exchange on any general topic)

To subscribe to any of these listservs, send an e-mail message to listserv@appa.org. Leave your "Subject" line blank. In the message space, type **Subscribe LISTNAME John Doe**.

As APPA strives to be your association of choice, we ask for your feedback and assistance so that we might serve you better. Join one of the discussion lists, check out APPANet regularly, and let us know how we can improve. With your support and input, APPA and the facilities management profession will expand and enhance its service to the education community.

APPA News

Philly Roundtables

While attendance was lower than usual, the discussions were lively at the roundtable information exchange tables held at the Philadelphia annual meeting last

July. Following are summaries of four of those discussions—written for the benefit of all APPA members by the moderator for each topic.

Rightsizing

by Frederick L. Klee
Ursinus College
Collegeville, Pennsylvania

Budgets have been slipping at the institutions represented at this roundtable, so the notion of downsizing is not new. Our discussion focused on how they are dealing with the reduced budgets and reduced human resources. One large state school has had in place for several years a zone maintenance program for the repairs of normal maintenance, which is limited to jobs that will take less than two work days to complete. They have their campus broken into

logical geographical areas and have the craftspeople go directly to those spaces. The remainder of the work—that which takes more than two work days—is assigned to the central shops for completion. The system seems to work well and has reduced cost to the university. In addition, there is a greater sense of pride in the work done since the ownership of the zone is in the hands of the assigned employees. They will begin to experiment



with housekeeping zones soon, but those zones may not be aligned with the maintenance zones. They have also broken up the campus grounds work into zones, also with great success.

Another large state institution has recently started the zone maintenance concept. They too have a specialized group for major maintenance and renovations. They rely on multicraft positions and expect their people to have near journeylevel status in two trades. Generally, supervisory positions have been eliminated to reduce costs. In some cases those people have been given a choice of moving back to the trades or taking retirements.

If a larger institution has not instituted a zone program yet, they should look at the viability and how it might work on their campus. ■

Custodial Staffing Guidelines and Analysis

by Greg Fichter
Indiana University
Bloomington, Indiana

APPA is planning to update and expand the current *Custodial Staffing Guidelines* publication. In addition, APPA will develop a benchmarking process geared to the custodial staffing efforts within educa-

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tional institutions. Several excellent ideas were raised that will be included in the survey being developed. Most of the group were interested in both aspects of the custodial staffing project, and they indicated that it will be difficult to identify all the critical items that we will need to include for comparison purposes. However, all agreed that a project and/or tool that can provide valid comparisons is needed. A task force will meet in November to begin the update process, and the goal is to publish the results by the end of next summer. ■

Facilities Auditing

by John Casey

University of Georgia
Athens, Georgia

Since the early 1980s, facilities audits have been used to identify and prioritize repair and rehabilitation projects at higher education institutions. Dr. Harvey Kaiser's description of a facilities audit, from his *Facilities Audit Workbook*, suggests that by evaluating the functional and physical adequacy of facilities, the inadequacies caused by depreciation, and exacerbated by deferred maintenance, are revealed. These issues produced a lively exchange of information among the roundtable participants.

Software programs designed to assist APPA members with facilities audits are available as separate programs or as part of the overall facilities management program. All programs are dynamic and designed to be upgraded routinely, and usually require minimum inspections on site. Also, current software programs are based on readily available data, such as R.S. Means Co. for construction costs and HEGIS/IPEDS protocols for space definition, and produce reports by building, department, or building systems.

All participants in the discussion agreed that facilities audits are difficult to perform, and identified four specific problem areas. First, a combination of in-house and outside consultant services was suggested as the best way to assure a successful audit. Second, there

appears to be no universal format for presenting audit data most effectively; this should be addressed on an institution-by-institution basis, since software programs can be fine-tuned to furnish and format data according to each institution's requirements. Also, regarding pejorative comments that often follow the publication of audit results, facilities managers should stress opportunities to improve facilities rather than dwelling on the "blame" issue. Finally, managers should insist on software transportability and comparability; this should be promoted by employing recognized database(s) and clearly defined terms.

All participants agreed that facilities audits are absolutely necessary to identify and quantify building and infrastructure needs. A computer-based system should be considered by APPA institutions, since such programs offer a dynamic and flexible means to keep track of facilities, as opposed to one-

time "snapshot" audits. Computer-based systems should be based on standardized database(s) and terms, and should allow output formats suitable for effective presentation to appropriate institutional decision makers. ■

Energy and Utilities

by Dorsey Jacobs

West Virginia University
Morgantown, West Virginia

The hottest topic to be discussed at this roundtable was on the wheeling of electricity, which is similar to what occurred ten years ago with natural gas. Interest was very keen in this area, and we recommend that APPA continue to examine the opportunities on the horizon.

Chlorofluorocarbon installations and the opportunity for saving energy was another priority topic. Schools making the transition from the old system to


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Another topic discussed was the establishment of energy management

agreements between the physical plant department and central administration, wherein physical plant receives back some of the savings from energy conservation programs into the operations budget or other energy programs. ■

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Partnership Revives D.C. College

An unusual partnership between Mount Vernon College and Georgetown University has given both schools an opportunity to benefit.

Financially troubled Mount Vernon College, founded in 1875 and located in Washington, D.C. only one mile from the Georgetown campus, had been turned down for loans by twenty-three banks. Then Mount Vernon College President Lucy Ann Geiselman and Georgetown administrators struck a deal: Georgetown University offered the college a \$6.5 million loan with a ten-year repayment term; if Mount Vernon can't repay the loan, Georgetown will get its campus.

While it is a risky venture for Mount Vernon, the terms negotiated include a promise from Georgetown that, should the college default, its students and faculty will be absorbed by Georgetown. Students will be graduated with Mount Vernon degrees and faculty will be offered one-year positions or be bought out of their contracts.

Further, the university would create the Mount Vernon College Institute, devoted to research and teaching about women and education to preserve Mount Vernon's heritage as a women's college. ■

Utah Sets Speed Limits

The University of Utah in Salt Lake City is trying to make its campus safer for pedestrians by cracking down on often-overlooked danger: speeding cyclists.

The university has posted signs on campus limiting cyclists, skateboarders, and in-line skaters to ten miles an hour. Police are using radar guns to catch offenders. The crackdown is in response to the death of a man from internal injuries after being hit by a bicyclist. ■

APPA Conducts First FMEP in Hong Kong

After five years and dozens of evaluations in the United States and Canada, APPA has conducted its first facilities management evaluation at an institution out-



photo by Bill Daigneau

FMEP team leader Jack Hug, right, meets with Mike Hudson during the evaluation of HKUST last June.

side of North America. Jack Hug, of the University of California, San Diego, was the team leader for an evaluation of Hong Kong University of Science and Technology, located in Kowloon, Hong Kong. The evaluation was conducted in June under the auspices of APPA's Facilities Management Evaluation Program.

HKUST was formally incorporated in 1988 and welcomed its first class in October 1991. Approximately 500 full-time faculty members teach at the university, and student enrollment is expected to climb to 7,000 by 1996. Hug's team members included Bill Daigneau of the University of Texas

M.D. Anderson Cancer Center, and two administrators from HKUST. The institutional contact was APPA member Mike Hudson, director of estates management.

For more information about APPA's FMEP service, please contact Lander Medlin, associate vice president, at 703-684-1446 ext. 229; or e-mail at lander@appa.org.

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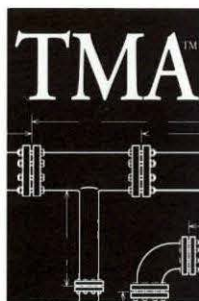
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Executive Summary

Wayne E. Leroy, CAE

A+ for Credibility

Summer is now over, and the time for going at a different pace is behind us. For some that pace was a little slower, for others it

is more hectic as pressure mounted for getting jobs completed before the beginning of another school year. In addition, summer provides an opportunity for interaction at events such as the APPA Educational Conference & Annual Meeting, the Institute for Facilities Management, and a host of other meetings with higher education students, faculty, and administrators.

A common thread clearly ran throughout the conversations at these meetings, and even pervaded the messages delivered from the podiums by various speakers and presenters: higher education has an image problem! Students are upset with our bureaucratic inflexibility, parents are enraged with continued escalating costs of tuition and fees, and employers are exasperated with our capabilities of turning out qualified graduates. Policy makers at all levels—federal, state, or local—are responding to these criticisms in unison: reduce resources, especially financial resources! That will force efficiency, effectiveness, and (most of all what we really want)...Change!!

As I have listened to these comments and concerns, I wonder if higher educa-

ty, not image, is the issue facing us in higher education, and maybe our credibility can be enhanced once we find a clear and concise way of defining, describing, and measuring the product of higher education.

Since higher education has a long and time honored paradigm of reflecting quality in terms of letters (example: A = outstanding effort), I would like to focus on three As and how they can be used by APPA members to enhance higher education and its credibility.

Assessing—the ability to obtain and gather information using uniform and accepted definitions and providing common measurements. It was with this objective in mind that APPA's new Strategic Assessment Model was developed and is now being reviewed for its capabilities to provide accurate and comprehensive ways to measure outcomes for facilities organizations.

Analyzing—using information to identify areas within one's own organization that need improvement. A variety of tools are available to assist in this effort: APPA's *Comparative Costs and Staffing Report*, the self-evaluation criteria for the Facilities Management Evaluation Program, the identification of other similar organizations through the International Experience Exchange, and others that provide benchmarking data.

Assimilating—this can be described as "just do it" and involves bringing into our own organizations those "best practices" we have discovered through assessing and analyzing. It is through continuous improvement that higher education facilities organizations will be leaders for all of higher education in its quest to become credible.

The success of most modern organizations is dependent on how fast change occurs and the positive acceptance of doing things differently. In most people's minds, change translates to being better, usually faster, and probably less expensive. It is these precepts that will be the challenge for facilities organizations and APPA itself as we all strive to become a Global Partner in Learning. ■

Wayne E. Leroy is APPA's executive vice president.

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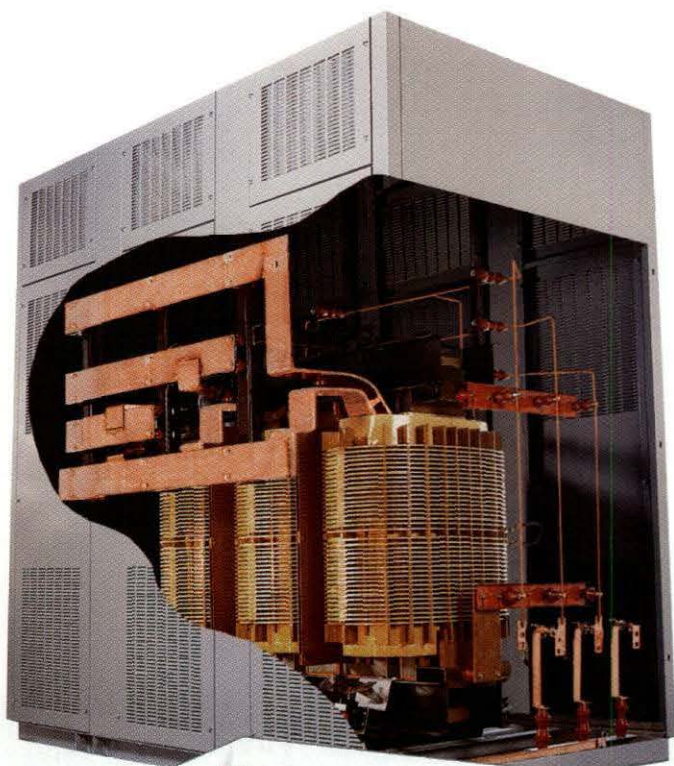
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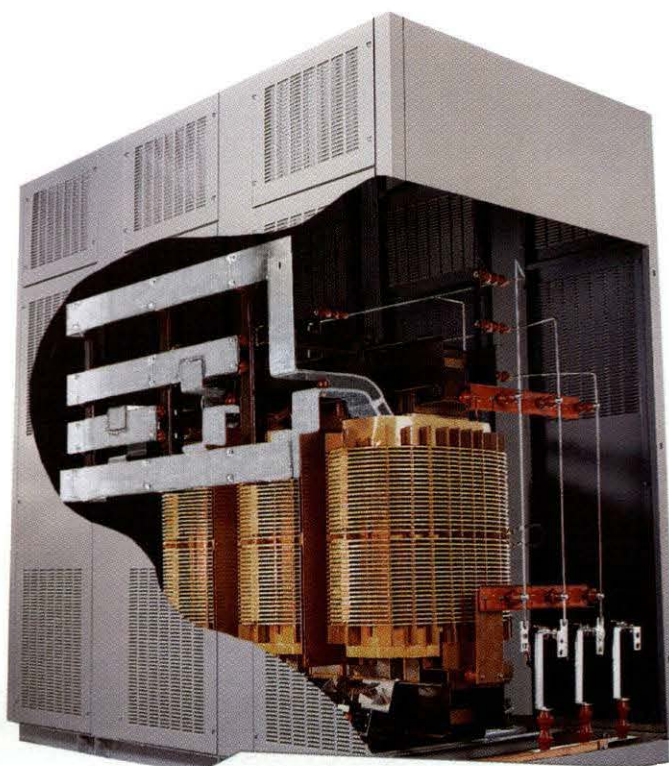
**The success of most modern
organizations is dependent on
how fast change occurs and the
positive acceptance of doing
things differently.**

tion "image" is the correct term. Most parents still want their kids to go to college, students still study hard to obtain high SAT scores to improve their chances of getting into the college or university of their choice, and business and community leaders still think that higher education is a valuable asset to their communities and the world at large. If everyone likes higher education so well, then why are many people so frustrated and continue to badmouth and perpetuate the negative image about higher education? Perhaps the answer is that higher education is monopolistic, has an arrogant attitude, is incapable of describing/defining its product, and is unable to provide credibility. Perhaps credibili-



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Focus on Management

H. Val Peterson

Krafted by Rick D. Compton

In the Summer 1995 issue of *Facilities Manager*, I shared with you my feelings about a printed message found on the bottom of a brown paper sack. The message was

placed there by a person named Mary, whose job it was to inspect the quality of the bags. Since finding the message from Mary, I have started to look at the bottom of paper sacks more often. Some people may question my sanity for going around reading messages on the bottom of brown paper bags, but I have found it to be quite interesting. Try it yourself. You may find, as I have, some very interesting messages.

In any event, it was only a couple of weeks after discovering Mary's message that I ran across another missive that caught my attention. This message was once again printed on the bottom of a brown paper sack, and it read, "Krafted by Rick D. Compton."

Now, in my opinion, this message is



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even more significant than the one left by Mary. It seems that Rick D. Compton would like the whole world to know that he is proud of the brown paper sacks that he crafts. Note that he doesn't just "make" these sacks, but rather he "krafts" them. Whereas Mary was only responsible for the inspection of someone else's work, Mr. Compton is responsible for the fabrication and quality of the bag itself.

I was once again impressed that someone like Rick Compton could find satisfaction and take pride in constructing something so humble as a brown paper bag. I can even envision Rick going home after work and bragging to his wife and family that on that day he had crafted 5,240 bags without one bad sack in the whole lot!

In addition to the obvious message printed on the bottom of this sack, there

Val Peterson is director of facilities management at Arizona State University, Tempe, Arizona, and a former APPA President.

is an unwritten message there as well. This message comes across loud and clear. The unwritten message is that people want to do good work—the kind of work in which they can take pride. And people want to let other people know that they do good work.

On the whole, most workers within a typical facilities management organization do good work. I am personally very proud of the work done by the kind of people—symbolized by Mary and Rick D. Compton—that labor within my own facilities management organization. I assume that each of you share that same pride for similar workers within your own organizations. It seems obvious to me that the same pride and satisfaction as exhibited by Mary and Rick in working with paper bags certainly exists in the minds and attitudes of those that operate and maintain the physical facilities at colleges and universities everywhere.

Even though, as individuals, we may not be able to leave our name on the areas or equipment operated and maintained by facilities management staff (surely we would be accused of creating graffiti!), we can leave our mark nonetheless. Our mark can be a clean restroom; it can be a piece of equipment that is clean and well-maintained; it can be a litter-free sidewalk; it can be a fresh coat of paint; it can be a well-crafted piece of furniture; it can be a thermostat that controls the room temperature at the proper setting. Our mark within facilities management can be all these things and much more. The collective "mark" of a good facilities management operation is how well the facilities are operated and maintained; how efficiently and effectively budgeted funds are spent; and how good the buildings and grounds look. We have the opportunity to leave our mark by the kind of work we do.

In facilities management, the best mark may be no mark at all.

People want to be proud of their work. Most people want to do the right things. As facilities managers we need to ensure that we do all we can to remove barriers and obstacles that hinder performance and limit employees from being less than they are capable of being. We need to encourage creativity,

self-direction, and suggestions whenever possible. To take a phrase from the military, we need to make sure we allow employees to be all that they can be. We need to create an atmosphere

where employees are able and expected to leave their "mark."

Let's make sure that our mark is left on something of which we can be proud. ■

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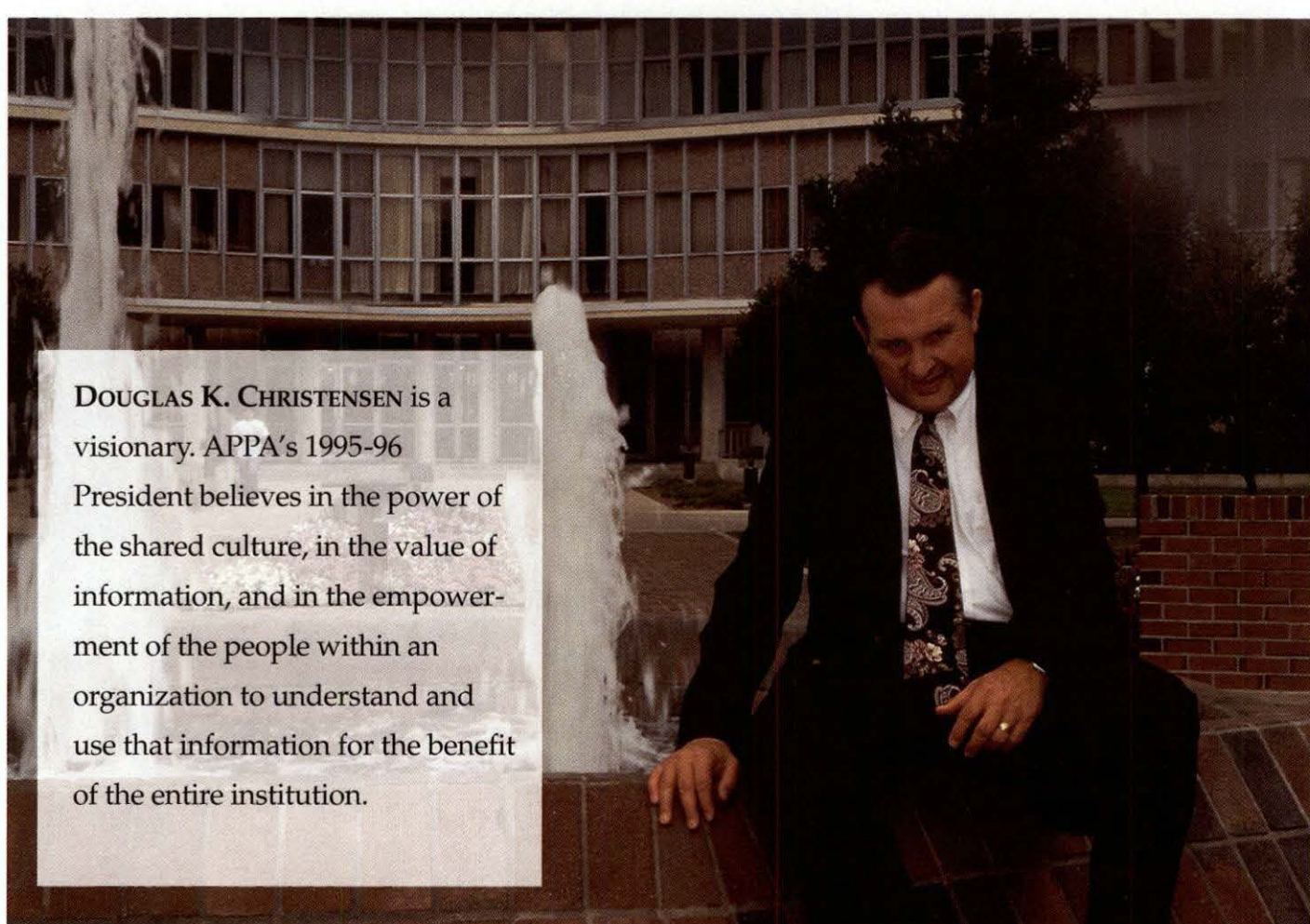
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Vision, People, and Process: An Interview With APPA President

Interviewed by Wayne E. Leroy, E. Lander Medlin, and Steve Glazner

photography by Mark A. Philbrick and Daryl Tichy

A photograph of Douglas K. Christensen, the APPA President, sitting on a brick ledge in front of a large, modern building with a curved facade and many windows. To his left is a fountain with water spraying upwards. He is wearing a dark suit, a white shirt, and a patterned tie. A semi-transparent text box is overlaid on the left side of the image, containing a quote from him.

DOUGLAS K. CHRISTENSEN is a visionary. APPA's 1995-96 President believes in the power of the shared culture, in the value of information, and in the empowerment of the people within an organization to understand and use that information for the benefit of the entire institution.

Wayne Leroy, Lander Medlin, and Steve Glazner are, respectively, APPA's executive vice president, associate vice president, and director of communications. This interview was conducted August 17, 1995 at the APPA office in Alexandria, Virginia.

ent Doug Christensen

Christensen, Brigham Young University's first APPA President since Sam Brewster in 1953, brings a variety of experience and qualifications to his current role within APPA. BYU, located in Provo, Utah, is affiliated with the Mormon Church, also known as The Church of Jesus Christ of Latter-Day Saints (LDS). Christensen has been employed by BYU for more than twenty-three years.

As an undergraduate at BYU, Christensen served on a student custodial crew, responsible for a student crew, which led to greater responsibilities at the university following his graduation in 1972 with a bachelor's degree in accounting and organizational behavior, with an emphasis on information systems. He became manager of the business for BYU's auxiliary services, then moved over to the physical facilities department as director of business support.

In 1984 Christensen was awarded a master's degree in information and administrative management, with emphasis on organizational behavior. He served for a while as BYU's director of physical plant, and is now director of the Capital Needs Analysis Center, which includes all of the higher education institutions within the LDS church education system. Christensen was the first person at BYU to computerize and integrate a total facilities operation with an information system.

His APPA experience is varied and deep. He has been a member of APPA and the Rocky Mountain region for more than eighteen years, and he was RMA's President in 1992-93. He was a 1992 recipient of the Meritorious Service Award, APPA's highest individual honor, and BYU received APPA's first regional and international Award for Excellence in Facilities Management in 1988 for the large school category.

Christensen also received the first Rex Dillow Award for Outstanding Article, for his 1987 article in *Facilities Manager* called "Integrating Capital Studies Within Physical Plant Organizations." He has served on several APPA committees, and he served on the evaluation team for the pilot Facilities Management Evaluation Program, as well as on several subsequent teams. He was part of the first delegation to visit the People's Republic of China in 1987 for the purpose of sharing and learning about facilities management problems at Chinese universities.

Christensen's interest in leadership has resulted as the chair of the Executive Development Institute and the more recent Foundations of Leadership program presented by the Covey Leadership Center. He is a member of the consortium to develop benchmarking criteria through APPA's Strategic Assessment Model, and he helped lead the Board of Directors through a process that has resulted in a new vision and mission statement for APPA.

We interviewed President Christensen in August for this special profile, and we asked about BYU's Capital Needs Analysis Center, the relationship between BYU and the Mormon Church, and his goals and expectations for APPA, among other topics. Read further to find out more about APPA's 1995-96 President, Doug Christensen.



Capital Needs Analysis Center

STEVE GLAZNER: What is the Capital Needs Analysis Center of Brigham Young University and what is your role?

DOUG CHRISTENSEN: Capital Needs Analysis is a program that began in 1981. Its purpose was given to us through the LDS Church Education System Commissioner's Office, where they asked a lot of questions about what it's going to cost to maintain the capital side of our facilities. In addition to the BYU campus in Provo, we have the Hawaii campus, Rick's College in Idaho, an LDS business college, a Jerusalem center, and a London center. The reason they were concerned about this is that they basically wanted to know what cash flow needs of the Church were required to meet the needs of higher education replacement and renewal. Most of the buildings were built in the 1960s and now the costs were going to hit us.

CNA is a total capital program that defines replacements for all component systems and everything in the facility, from roofs to buildings to all kinds of things. We have a database of replacement items and a list of what types of projects deal with retrofits and improvements or with new space. We put together a forty-year cash flow of what the capital needs are so that proper planning and support occur and that we have the capital resources required to meet the ongoing needs of our higher education system.

LANDER MEDLIN: *What is the relationship of the Capital Needs Analysis Center to the Maintenance Department at BYU?*

CHRISTENSEN: We're tied together very closely, but the key is that the capital is something you can plan for and manage. One aspect of the capital needs replacements is that we use the people who maintain and repair and deal with the components on campus to do the annual inspection of those items that have a remaining life. It's designed to be a bottom-up organizational decision—that the people who maintain the area and the equipment and the roofs can make the best judgment as to when the item's useful life is gone. Working with their supervisor, the administration, and everyone who has an interest in the planning aspects of it, they really work together to determine whether it's an important item and whether it has high priority.

"The people who maintain the area
and the equipment and the roofs
can make the best judgment as to when
the item's useful life is gone."

One of the major concepts that we're dealing with that I think is unusual to most in our profession is that we consider that finding what the real needs are on campus is more important than finding out how much money we need. We have found that as we've partnered with the customers on campus, as well as with the administration and our own employees. By putting all of those three ideas and desires together and focusing on finding out what the needs are, we then are representing the needs of campus in the facility area. But it's a much different process than trying to start at how many dollars you have and trying to maximize those. We want to be representing the real needs of all of our customers and all of our stakeholders.

MEDLIN: *Has it changed the approach that you have with your stakeholders? What kind of outcome are you seeing there?*

CHRISTENSEN: Just support. An example: Because capital funding is such a roller coaster—some years high dollars, some years low dollars—what we're finding is (in fact, we found this out at the beginning) that it's important for us to give the administration an idea of what the overall dollar needs and impacts are and to level out that cyclical up-and-down. And, in fact, we've worked on a funding limit so that as we go through our process of determining needs, if some years our needs are below that limit, then we're able to bank the dollar difference and save it for a year where we're over the limit. In reality, the higher education factor in capital planning is paying a straight-level fund every year like they would in operations. And we're managing the cycles that are sometimes over, sometimes under. The Commissioner's Office reviews each year the kinds of things that have zero remaining life to enforce and make sure that the standard that we're inspecting toward is the same standard that they seek.

So there's continuity and congruency in where we're heading with our capital facilities.

One component that's very important is the one-time projects. We go out and visit with deans and directors and look for project needs. We want the vision of where the user thinks the building's going, so when we come up with a replacement in a building we're seeing the whole picture. We also have the vision from users as to where the building's going. If we're going to put a computer lab in a building that hasn't been there, and we're going to do retrofitting on a utility system, we can size that to where we're going to be with the building. We're working with the campus and with facilities and with the administration on making sure that whatever we spend, we are putting the building in a very favorable position for the future. So, it is functional and we can meet the ongoing needs of the faculty and the users.

WAYNE LEROY: *In your experience within the Capital Needs Analysis Center, have you seen an emphasis from the administration of the institution that makes it easier to do the budgeting process and to make sure that the resources are there for the enhancement of the facilities on campuses?*

CHRISTENSEN: Yes. In fact, the biggest challenge we're having is the idea of getting a master plan out of the academic side and the administrative side. What we have found is that we can pretty much understand how the building is operating and what types of replacements, but the real vision comes when we partner in the process each year of finding out what the real needs are. We find that the administration and faculty are very willing to be partners and involved in the planning process as long as we're willing to communicate and provide teamwork. You need to remember that this is working on many different campuses all toward the common goal.

The CNA program has given us a real business tool that helps us really know what this building is and where it's going, and allows us to make much better decisions. It's very proactive in painting a picture for the future. We don't want any surprises. One of the results of all this since we started in 1981 has been that we're in a much more planning mode, we aren't being surprised, and we're actually taking care of problems in a much better way. In fact, we declared that we have no deferred maintenance on campus, because the standard that we're at is the standard that everybody has agreed to either in an operation-maintenance sense or in a capital sense.

MEDLIN: *How many people support the Capital Needs Analysis Center function?*

CHRISTENSEN: I have one assistant, and we have four students, and we coordinate with all the campuses. The biggest problem is getting the inventory of items. Once they're established, then it's just a matter of letting the maintenance people, as well as the administration, continue to modify and refine the data. It's part of their culture and is not separated out as a program. It's the way we do business, so it doesn't take a lot on our part. Let me emphasize that the process is what makes this work. It's working with people, working with things, and working with desired goals and directions. That process is what really makes this system work. The greatest thing we've done at BYU is to have gotten



Christensen received APPA's first Rex Dillow award in 1988. Left to right: Phil Rector, Christensen, and Rex Dillow.

photo by Bob Rabito

the individual worker, with his or her competency and skill, to really direct us into when the replacement is needed.

Our whole culture is centered around maximizing our resources. And we want to extend the useful life of everything that we can. What that's done is not only given us a lower cash flow to meet the ongoing needs, but it's also helped us in our planning and designing new facilities. We basically know the kinds of components and systems that will give us the maximum useful life, so maintenance is now affecting a whole design-construction process to make sure that we do have facilities that we can maintain in a proper way over time.

Student Employees

GLAZNER: *BYU utilizes its students as part of the workforce probably more than any other college or university. Could you explain that program as it relates to the facilities area?*

CHRISTENSEN: We have student jobs available and they apply and go through the same process as if they were applying for a job. So, there's no forced kind of thing, but it's very, very encouraged. We encourage students to earn enough funds and money to pay their tuition, to get their education. There are a lot of students who have to work in order to get their education. But, it's a unique culture. As I talk to physical plants people at other schools, this kind of work ethic for students just isn't there. We've enjoyed it for a long, long time, and we think that it will be very important to our future.

Culture/Values

MEDLIN: *Given the culture you described and what has really transformed the way you do business, is this unique—the fact that you have the particular shared values that you do. Do you think this is particularly unique to BYU, or can it be achieved at other institutions?*

CHRISTENSEN: Well, it's an interesting question, Lander, because values come from individuals and from cultures, so there may be some cultures that these kinds of shared values could never thrive in. I've just never studied any other cultures to find out. The thing that I've noticed that's kind of an interesting sidelight is that as people begin to share values and begin to work as teams and start getting a clear understanding of where they're going and their mission is lined up, then something happens to their culture that becomes very similar to what we're used to in our culture at BYU. I'm not saying that we're always the best culture, but there is a lot more teamwork, energy and synergy. You're trying to be there for the good of all and not just for the good of the department or the good of the person or an individual. BYU has a culture that continues to reinforce the idea that we're in this together and we can't reach our common goals unless we do it together.

So, I don't know how it could spread. All I know is that we have to continue to work at the culture we're in, and to continually improve. We have a slogan from Dee Anderson, our vice

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president who just retired from BYU. He said "Do it today better than yesterday." He emphasized the point that it's the little things that you continue to do better that make the whole better.

GLAZNER: What is the relationship between the Mormon Church and Brigham Young University?

CHRISTENSEN: BYU's Board of Trustees is made up of the leadership of the Church. Education has been a primary goal of the Church for many years. Wherever the Church has been, it has developed educational institutions and provided educational opportunities. There is a significant tie between learning and the Church. One of the reasons for BYU was the idea that we wanted to be able to teach the doctrine of the LDS Church and tie that in with the doctrine of the world, you might say, in what their learning is and what our learning is. The thing that will make BYU great will be taking the secular knowledge and religious knowledge and coming up with as close to the truth—the eternal principles that are out there—as you can. That's a foundational principle not only of the Church, but it's been passed on to BYU.

If you look at the mission statement at BYU you will see that one of the major charges of BYU is to assist the Church in becoming better and in using the learning of the world as well as the learning of the Church to make progress in that direction as well. It's a pretty tied together kind of situation. We are under their direction, and we are a significant arm of the Church in teaching the level of intellect for the members of the Church to go out and serve. Each campus has its own mission and its own area, but the overall goal is to bring secular and gospel principles together in a way that they make sense in your life and that you understand what they're all about.

MEDLIN: Could you speak specifically to the perception that many people have of BYU's unlimited resources?

CHRISTENSEN: Well, it's always amazing. Whenever we do an accreditation study or when we look at ourselves and do comparisons to others, we find that we're very comparable and, in fact, in some cases lower. There are some obvious reasons for that. Number 1 is when you have a lot of students working and you're not being a full-time staff, you get a lot of labor hours pretty inexpensively. As long as students are willing to work, we can do a lot of things within those hours, and hopefully we're smart enough to do it professionally so we're not just spending money because students want to work.

The other thing is that when we build a building, we build it to a certain standard. When all of our buildings are built, we actually go through a very detailed programming design process. We involve the shops and everyone in that process. When we build a facility, the facility is owned by maintenance as much as it's owned by the user or the person in it. If you maintain a new building at a new level, then it's very easy and inexpensive to keep it maintained at that level. Our sad experience is that in some of our facilities on the Hawaii campus we didn't do the proper investment, and it cost us a lot more money to bring that up to a differ-

ent standard than it ever cost us to maintain the standard we have. We have to give Sam Brewster and Harold Anderson and others credit. It's more important for us to keep the building at the highest standard we can and maintain it at that level and to get the resources it takes to keep it going rather than let it slide for a few years and then try to catch up. That's why I think people have this perception when they come to our campus and see that everything's clean and neat and in order and that it doesn't show a lot of wear and tear. We're reinvesting in facilities at the time we build them, and then we maintain them rather than play catch-up. In addition, BYU receives no federal or state funding. The Church doesn't want to lose any of its ability to control its destiny. The key is the shared values throughout the higher education system.

Mentors

GLAZNER: Are there individuals in your career who you look to as mentors or as guiding lights who have helped shape your vision and your view of what facilities and facilities management is all about?

CHRISTENSEN: I think most of us who serve in facilities at BYU will look back in our history and say that there were two people who really developed the culture and made it workable and really laid the proper foundation—I'm speaking of Sam Brewster and Harold Anderson. There are many others, such as Dee Anderson and Ed Cozzens, but Brewster and Anderson really started building the structure we work within today.

Since they built the campus, there was a beginning there that we have continued to benefit from. They established standards, created work relationships, and developed very solid processes that really give us the results we're getting today. Even though some of those have been modified and changed over time, the whole idea has not changed. So I have to give them credit for establishing something that we live within and value as a way of doing business.

Information Management Systems

LEROY: Doug, a major component of the Capital Needs Analysis program is information-driven. Would you share with us your concept of the importance of information as both a management tool and a planning tool for enhancing facilities?

CHRISTENSEN: Sure. It's a very important part of where we're going. In Alvin Toffler's recent book, *The Third Wave*, he discusses the paradigm shifts that have occurred in history, the first one being all of those things that relate to "farming," where you were self-reliant. You did things for yourself. Then we moved into the industrial age, where it became important to manufacture and increase industry. In fact, the assets of that time were really buildings and systems, and the liability was the people and the training that it took to produce and to manufacture. With the third wave, which is information, we have changed what is an asset and what is a liability; in today's thinking the assets of an organization are really the people and their skills and training. And, possibly, the liabilities could be the buildings and the systems and the things that we have around us. In the information age it's more

important, from an asset standpoint, to be focused on people, and people using information to make better informed decisions. Because things are continually changing, information needs to be refined and given importance. What you learn about a system or facility needs to help in the management and planning process. Informed decisions in today's culture are better than assumptions and in some cases, experience.

Leadership vs. Management

MEDLIN: *What is your philosophy on leadership, especially as it plays out in your role as APPA President?*

CHRISTENSEN: Leadership is three basic things: One is it defines a direction, a vision of where you want to go. Second is it really talks about aligning constituencies. How do you get people and systems and structures to align with where you're going? And the last is, how do you motivate and get enough energy to get to the next level or the direction you're going?

Right now colleges and universities are downsizing, right-sizing—we're in a big change environment. And there are a lot of people who are confused by it. If they're looking at it as a management issue, then all they look at is a reduction in resources, and we just don't know what we're doing or where we're going. If they look at it as leadership, they're saying, "Oh, I am responsible for this but I've got to change how we do business and take that responsibility and go to the next level and find what the direction is."

You've got to talk about things such as strategic planning and executive level skills. You're going to be dealing with a different level if you're talking about direction, because now you're a partner with the administration in many cases. You've got to be willing to take risks and do experimentation. You've got to be able to network. What are the best practices? How can I be motivated by somebody who is doing something good that I need to do? How do I develop change? And you still need to consider the culture and uniqueness of your institution.

APPA's Vision: Global Partner in Learning

MEDLIN: *Please tell us about your accomplishments during your term as President-Elect last year, and what your goal was during that year as the head of APPA's Planning Committee.*

CHRISTENSEN: When we looked at the findings of the 1994 evaluation by the American Society of Association Executives, we started getting pictures of how we needed to change as an association. As the President-Elect, one of the issues we dealt with initially was where are we going, what direction. The APPA Board came up with the vision statement, Global Partner in Learning. Once we got a vision statement, then the other pieces started showing up. For instance, we have a total business plan of where we're going. We have a long-range plan in mind, and we continue to develop our strategic plan. But they have to be in sync.

GLAZNER: *Could you explain the components of the new vision statement?*

CHRISTENSEN: When we say Global Partner in Learning, really represents the future and the direction of APPA. Let me just take each word, because it's hard to talk about it in total without giving meaning to each of the words.

Global has a meaning that is critical to APPA; we have to be global in the way we support APPA members worldwide.

Global could mean that we're concerned about the core stewardships and the core competencies that each individual has, and that global can mean all of the responsibilities that each member of the association has.

APPA has got to determine what its core stewardships are but, more importantly, who we have to partner with in order to meet the core stewardships of those members. If our strategic plan states that we want to be the association of choice, then we have an obligation to say that we can commit to these kinds of competencies as being things that APPA would really focus its resources on.

Next, we need to *partner* in a lot of things because we don't have the resources to be all things to all people. The only way we can really meet the individual needs of the members of APPA is to find partnerships. APPA does a marvelous job in developing partnerships, and we really need to continue that. And as we partner, we need to develop ways of looking at our core competencies. We have discussed the creation of "centers of excellence, but we need to do more in the area of finding ways to be a better resource to those responsibilities of our members. It's going to take a lot of partnerships to make it clear and precise what we want to achieve.

The last area is *learning*. We need to find ways to develop the personal skills so that we can be in the position of learning and changing and doing those things that will help us get by in these times of change. I personally think that there's a lot we can do in this area, that we truly can become a Global Partner in Learning by focusing on those things that are important for us to know about. And then we have the skills as the individuals in APPA to get to the next levels, to find partnership in our administration so that learning, in a sense, really is the learning of how we can better serve through the vision and mission of our facilities organizations to meet the mission of the universities and institutions.

Vision Strategies

LEROY: *In order to achieve that vision, we're going to have to create some strategies that are going to get us there. Do you want to expand on some of those strategies and lay out the plan as to how we're going to utilize those strategies in achieving the vision?*

CHRISTENSEN: There are four main objectives that I would like to see the Board of Directors complete by July 1996. One is to finalize the teamwork elements and to share the APPA business plan strategy and continuous improvement. We're in the middle of this; we've got most of the elements identified. We just need to finalize it. It would be my goal to publish a booklet for the membership that would deal with the framework at what's happened and what pieces fit together and how they all work.

Number 2 is to finalize and adopt the strategic plan. As you know, there is one overall objective—to be the "association of choice"—and then there are six other objectives that we want to achieve in the plan. The first is an increase of meaningful participation in involvement of APPA's stakeholders. 2.) The international APPA and the regions are partners in alignment working together synergistically. 3.) The organizational structure facilitates and supports the mission, vision, and goals and is consistent with the principles. 4.) All APPA stakeholders shall have equal access to information and to



Christensen on campus at BYU.

education/learning opportunities. 5.) The process for performing and integrating strategic financial and business plan is in place and in use by APPA. 6.) APPA communicates with its stakeholders using channels of their choice.

We have spent time with the Board identifying the vital assumptions, threats, weaknesses, opportunities, and strengths of the association. Then we put together some major objectives, and within each objective we developed some strategies, some things that we ought to do, and so on. I've asked the Board to review, prior to our February Board meeting, certain strategies and have them implement an idea of a way we ought to approach the strategy. One of the key things that we need to have in place is a process to look at impacts on our resources. It's called a business plan request, where anybody in APPA can fill out one of these requests and have it go through a process of review. We want these ideas to be coming in all the time. We want to inform the members on things they may not be aware of, as well as things we can do with existing resources. We want to jump on them and make

them happen now, not two to or three years from now. Some of these requests will become strategic in nature. They will ask to do things different than we're doing them; we have additional needs than you're addressing; or whatever. They all become part of our strategic plan, and they're added to our strategies under certain objectives.

The strategic plan has to be shared by all. It's critical for us to get to this partnership within APPA and to continue to maintain it so that Global Partner in Learning may be as

global as the people we work with in our own campuses, and not necessarily meaning the people who are foreign to us.

I've asked the Board to take as its third objective to study and propose any rightsizing issues that they may have related to APPA. We're going through an interesting period where cost is having an impact on the kinds of things we can do. We are going to have to find ways to manipulate our resources so that we're maximizing the services that are important to the members. And it may be that we've got to find ways to reduce costs and change the way we currently do our business so that we can, in fact, reinvest those resources into new and better things. The only way continuous improvement is going to work is if we have the flexibility and the resources to get where we're going to get. Wayne's done an excellent job of finding people who are willing to help us get to the next level and even provide resources to get there. But internally we need to look at how we're doing our business and see if there are any old paradigms that just don't quite fit where we want to be, and if we're too rigid we need to be more flexible.

Or is our standard a little higher than we need to have, so that we can take those investments and those savings and put them into something that will really benefit the members. That's why I think rightsizing is something that needs to be looked at, and we'll have certain members of the Board working on that objective.

The last Board objective is probably the major one, in my mind. A lot can be said about it. It's a study of major initiatives to "becoming a global partner in learning." This needs to be a shared vision of where we're at and where we're going, and I must say it's probably a personal vision as much as a shared vision at this point.

An overall vision I have, which may or may not fit our scenario, is the idea of looking at APPA as a university, and that our core stewardships are the colleges and academic kinds of areas. The paradigms and focus are pretty similar to that of the university, in terms of life-long learning.

Most people would agree that the way we maintain utilities today is a lot different than the way we maintained them ten or twenty years ago. That's the kind of learning that's got to take place. My goal would be that anyone out there with any of their core stewardships could call on APPA, and if they're having a problem with utilities or building teams or custodial operations, they could find the latest and best information about that stewardship when they need it, when *they* feel like it's important to know it. There will be enough information, either in articles or seminars, whether it's provided by APPA or other associations.

We need to be a source of help to individuals when they need to be helped. If that's true, then all of the change around us and all of the things that are important to the world continue to change our culture. APPA will be a partner with them all the way, and hopefully be giving great support to these individuals in the facilities organization.

GLAZNER: *Do you feel that APPANet would be a major influence or tool for this purpose?*

CHRISTENSEN: We've already got probably one of the best tools to deal with that in the area of information sharing, and that's APPANet. We've got to find out how this resource can help us the most and maximize it. Business can be done this way. APPANet can help us get answers to very difficult problems and questions almost instantaneously. APPANet networks people. You've got to have people who have tried it and people who have already experienced it so that you can talk about results and see if it would be a solution for you. We can't give our campus leaders or trustees a report three inches thick and say that this is our consultant's report. We need to be able to talk about the information or need in a summary sense and in the what-are-the-advantages/disadvantages sense, and not in the report sense, we'll never be a resource for our institutions.

APPANet fits into all this by giving us access to individuals and to information, and you just have to find ways to take that resource and maximize it to benefit the facility manager and the facility leader. APPANet is a very important tool for our profession.

Strategic Assessment Model

GLAZNER: *At the Philadelphia annual meeting in July, a consortium of APPA members presented a model tentatively called the Strategic Assessment Model, which is intended to be a benchmarking effort that is more usable, valuable, and beneficial to the APPA member as opposed to other benchmarking or comparative cost efforts. How does the new Strategic Assessment Model fit with APPA's current goals and strategic plan?*

CHRISTENSEN: Let me first say, a big thank-you to American Management Systems, who through their experience and review of APPA, probably helped spawn the idea that we needed to increase our professionalism. Another piece that will affect us is the reaccreditation changes that are happening throughout the country. There is a facility piece and a management and asset piece in there that we may or may not benefit by. So, there are a lot of reasons for us to look at measuring. If you move from an institutional thinking kind of organization where you just spend the resources that have been

given to you and maximize them to your business thinking, and now you start thinking strategically how you are going to invest, what's your return on your investment, how well you are investing, and then measure how successful you are in your decision-making process. I think that's what gave a lot of input and strength to what we did with this Strategic Assessment Model. The process was great. We had a consortium of nine APPA members, plus APPA and AMS staff. We sat down to talk about the basic things that were important, and we determined that there are global things that we really ought to be measuring globally, and those ought to be comparable. But we also made the distinction that there are some things that were better just measuring against ourselves for improvement and not trying to measure across the board. And that distinction, I think, could be very critical. So, you develop tools to become better internally, but you also develop tools to measure the industry. Just separating those two thoughts really helped us look to where we need to be in the future.

I thought that the session at the annual meeting went extremely well. There were a lot of good questions and comments.

The key point to the Strategic Assessment Model is the idea that whatever the strategic direction is, given the vision of the mission, that is the basis for how we basically want to measure where we're going, and that the balanced scorecard concept helps us focus on four specifications: financial perspec-



tives, internal processes, innovational learning, and customer satisfaction. These four areas provide balance to what we're trying to do in our overall objectives within facilities leadership and management. We're not just financial. We've got to look at the other kinds of things that have become *as* critical and not more important to the balance we try to achieve with our objectives. So, I think the Strategic Assessment Model is going to be a major tool for us. We are testing it right now, but it will end up being a great tool for us to be able to build on and look at. It'll give people a handle on where they're at plus a tool on what level they want to achieve in terms of their overall strategies. It gives us an opportunity to choose where we want to be and an idea of what it's going to take get to another level.

Conclusion

GLAZNER: Doug, is there anything you'd like to say in conclusion?

CHRISTENSEN: The success of APPA is embedded in the hearts and minds of those who belong. This association needs to become more flexible in accepting the ideas, needs, expectations, and challenges that we are facing in our professional area. This cannot only be limited to those who are institutional representatives or associate members, but it must deal with the total facilities organization at our institutions.

This year we hope to develop the process that will allow

each and every person in the facilities area to have access to the information that is available concerning our profession, as well as access to influencing our needs and expectations. The members of APPA are our significant stakeholders; therefore, significant resources should be spent on their behalf. It must be our goal to provide everyone an opportunity to thrive in the disciplines of your choice, so that you truly can be lifelong learners. The things you learn and understand and know to be of value and importance to you in your setting can be shared and act as motivation to those in other environments.

We need all members' help to reach our overall objective to be an organization that is the association of choice. We need to continually find the meaning in our vision for each of us to be a Global Partner in Learning. We in the APPA leadership strive to find direction that gives new meaning and motivation to a better future.

Let me also say what a great opportunity it is to be part of APPA and to share with all the people who really make our profession what it is. Many members have helped me to understand what is important and what isn't, and have taken the opportunity to be involved, to share ideas, and stimulate new thinking. I want to thank all the members for their tremendous contributions to APPA, and I'm looking forward to a dynamic year.

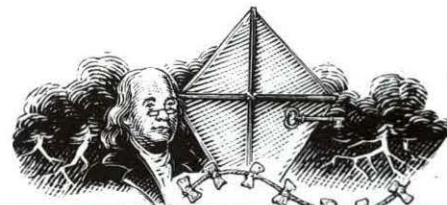
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Call to Servant Leadership



by Kent M. Keith

As leaders, managers, and administrators, you face a lot of interesting challenges in your work each day. What you do, and how well you do it, is of fundamental importance to your institutions. Your leadership has a wide-ranging impact on thousands and thousands of people on your many campuses.

How you lead is influenced by the ideas about leadership that you carry with you. For most people, ideas about leader-

ship are ideas about power. I believe that we need a different focus. We need to focus on service, not power. And the leaders we need are *servant* leaders.

My purpose is twofold: First, to explain what servant leadership is, and second, to call you to a life of servant leadership.

The Meaning of Life

To explain what servant leadership is and why it is important, I start with a simple and important question: What is the

Keith, second from left, relaxes with Wayne Leroy and Charlie and Ann Jenkins before giving his keynote address at APPA's 1995 Annual Meeting.



Kent Keith is past president of Chaminade University in Honolulu, Hawaii; he currently is a student in the graduate leadership program at University of Southern California. This article was taken from his keynote address to the membership at APPA's 1995 Educational Conference and 82nd Annual Meeting, held last July in Philadelphia, Pennsylvania.

meaning of life? For many, the answer begins with religious faith. For most, the answer either begins or continues with love. I believe that in most countries, cultures, and centuries, people have discovered that love is the meaning of life. Not power, or wealth, or sex, or fame, but love. Happy people are people who know how to give and receive love. For most people, that is the deepest, most exhilarating meaning of life.

When we stop to think about it, we discover that we really do love each other. We love our parents, our spouses, our sisters and brothers, our children, our relatives, and our friends. We may not love them well, we may not love them enough, and we may not love each of them in the same way, but we love them. And because we love them, we care about them. We care about the community they live in. We care about the nation and world they live in. We care about their education and personal growth. We want them to have the opportunity to be all that they can be. We want them to be healthy and happy, with satisfying jobs or activities, living and working in a good environment. We want them to have whatever they need, because we love them, and we want the best for them.

The interesting thing about loving people, and wanting to help them, is that this love can grow and grow, encompassing more and more people, until it encompasses all of humankind. You begin to feel compassion for all human beings. You begin to identify with their trials and tribulations, and you want to help them if you can. But how do you help?

The Servant Leader Defined

Servant leadership is a way to help. A servant leader is a leader who is focused on serving others. A servant leader is aware that he or she is an instrument for good, a person who has been given certain abilities or gifts that are meant to be used in helping others. A servant leader is not worried about the attention others pay to him, but the attention he or she pays to others. A servant leader loves people, and wants to help them.

Servant leadership is not about power, it is about *service*. The servant leader does not go around asking, "How can I get power, how can I make people do things?" The servant leader asks, "What do people need? How can I help them get it? What does my organization need to do? How can I help my organization to do it?" Thus, rather than embarking on a quest for personal power, the servant leader embarks on a quest to identify and meet the needs of others.

Servant leaders do many of the same things that other leaders do. They envision goals, affirm values, plan, organize, motivate others, and so forth. The way servant leaders do these things depends on their personalities and the specific circumstances. The servant leader often surveys a group to look for what it needs to be effective and reach its goals. Because the missing link will vary, the servant leader does not always perform the same role or service in each situation.

A servant leader can accumulate and exercise power. A servant leader can become angry and enter the fray to do battle, mobilizing support and taking bold action. What is important is that the servant leader accumulates power or becomes angry *on behalf of others*. The servant leader acts in response to the way *others* are treated, not in response to the way he or she is treated.

There are times when a servant leader has to argue, or engage in conflict, or get into a fight. But there are more times when a servant leader will stop a fight, by deflecting an attack, or by absorbing an attack and going on to do what

really needs to be done. People who have the strength to do this can limit the amount of conflict and pain that is suffered by the organizations for which they work and the societies in which they live.

Whatever the situation, the servant leader is servant first. In his book, *Servant Leadership*, Robert Greenleaf makes it clear that someone who is a leader first, may want to satisfy a drive for power or for the possession of material goods. Greenleaf says that a servant leader makes sure that other people's highest priority needs are being served. The best test of whether that is happening is to ask: "Do those served grow as persons? Do they, while being served, become healthier, wiser, freer, more autonomous, more likely themselves to become servants?"

Servant leadership is not a new idea. The Gospel of Matthew tells us that Christ came to serve, not to be served. He healed the sick, fed the hungry, and comforted those who were alone, or outcast. And he made it clear that his followers are to do the same.

The concept of servant leadership can be found in other religions or philosophies as well. The *Tao Teh Ching* consists of the ancient writings of Lao-Tzu, a sage who lived in China about 500 B.C. Lao-Tzu is known as the founder of Taoism, a Chinese philosophy or religion which emphasizes simplicity, selflessness, and non-intervention. Lao-Tzu describes a leader who is so effective that he is nearly invisible. When the deeds are done, the people say, "We did it ourselves."

Examples of Servant Leaders

There are no doubt thousands of examples of servant leaders in literature, the movies, history, and daily life today. I think of historical figures such as Washington, Lincoln, Father Damien, Father Chaminade, Clara Barton, Eichi Shibusawa, Gandhi, Albert Schweitzer, Martin Luther King, and Mother Teresa.

All of these people are famous. My guess is that most servant leaders have *not* been known to the group or community they have served. Like Lao-Tzu's servant leader, they have been "invisible."

An especially good example of servant leadership is found in the book *Watership Down* by Richard Adams. This is a wonderful fable about a group of rabbits who set out to find a new home. Hazel-rah, who becomes the Chief Rabbit, is not the biggest rabbit in the group, nor the cleverest, nor the most clairvoyant. But he becomes the leader for a number of reasons. First, he is willing to listen, often asking for advice from others. Second, he knows the different strengths of the other rabbits, and draws out those strengths for the good of the group. Third, he is able to identify the needs of the group, and make decisions and take action in a way that unites the rabbits in seeking to achieve their common goals. And fourth, he is willing to pitch in, and take personal risks on behalf of the group. Hazel-rah is a servant leader in a participatory or democratic community. The rabbits face hard times, and are severely tested, but they work together as a team, and they find and build their new home.

Another story that comes to mind is *To Kill a Mockingbird*, the Pulitzer-prize-winning novel by Harper Lee. The story is set in Maycomb, a small Southern town, during the Depression. Atticus Finch, portrayed in the movie by Gregory Peck, is a lawyer who defends a black man, Tom Robinson, who is unjustly accused of raping a white girl. In a time of

racial passions, the jury ignores the obvious facts. Atticus loses the trial, and Tom, who is certain that there is no hope in appealing his conviction, is shot when he tries to escape.

Although Atticus loses the trial, what is important is that he placed himself in service to another, and at great personal risk, stood for what was right. Those around him were inspired by his quiet courage. This is dramatized in the scene right after the jury has issued its "guilty" verdict. Atticus says some reassuring words to Tom, chats briefly with the court reporter, and then begins packing up his books and papers. Members of the black community, who are up in the balcony, watch him packing up. One by one, they stand up, in a silent gesture of respect. His daughter is up there in the balcony with them, and as Atticus turns to leave the courtroom, Reverend Sykes leans over and says to her, "Miss Jean Louise! Miss Jean Louise! Stand up. Your father's passing!" Wouldn't it be wonderful if each of us did something so noble that others would ask our children to stand in respect?

For the servant leader within an organization, the question is: How can I be of service? Or in Peter Drucker's words, "What can I contribute?" Drucker, in *The Effective Executive*, writes:

~

The effective executive focuses on contribution.

He looks up from his work and
outward toward goals. He asks:
'What can I contribute that will
significantly affect the performance and the
results of the institution I serve?'

~

Drucker notes that focusing on contribution requires the executive to look toward the performance of the whole—what is good for the entire organization. He looks *outside* the organization, because that is where the results are—that is where the people are who need help or need the product being produced. The effective executive comes to think of his or her work in terms of the purpose of the organization and the needs of the customer, or client, or patient. Drucker, in his own way, has described the effective executive as a servant leader, focused on contribution, and focused on others.

The politician is supposed to be a public servant—a servant leader by definition. The fact that many, today, do not act as though they *are* public servants, has caused or reaffirmed a great deal of cynicism about political leaders. It is possible that if more political leaders *were* servant leaders, they could begin to change the image and reality of political leaders in ways that would, over time, develop a new sense of trust and respect between citizens and those whom they have elected.

One of my favorite books as a young man was *Profiles in Courage*, by John F. Kennedy. Kennedy describes eight U.S. senators, each different in his own way, who made a tough decision on principle, and served the nation at great personal sacrifice. Whatever kind of leader each had been in his career up to that point, he became a servant leader when he made the decision to put the good of others first. Their examples have always been inspiring to me.

Different Focus, Different Motivation

The differences in human motivations are fascinating to observe. An excellent example is the movie *Chariots of Fire*, the

story of the British track team at the 1924 Olympics. The movie contrasts the personalities and motivations of several of the runners. Harold Abrahams has a chip on his shoulder. He is an intense, driven man; he runs to prove something to the world. When he loses a race against Eric Liddel, he is crushed, he is destroyed, he doesn't know what to do. Ironically enough, the same thing happens later when he *wins* at the Olympics. Having only one goal, he is completely disoriented when he reaches it. Now what does he do?

Lord Lindsey runs for fun. He has money and position, and no possible worry for the future. He runs because—well, old chap, one has to do something with one's time, doesn't one!

Then there is Eric Liddel, the Scotsman, who runs with a depth of joy and strength of courage that delights the crowds and astounds other runners. During a race before the Olympics, a competing runner shoves Eric to the side, causing him to fall. Eric shakes himself, and then gets up, to run the greatest race of his life. As he breaks through the tape, he collapses, heaving and contorted on the ground. "It's not the prettiest race I've ever seen," says Coach Musabeni, "but certainly the bravest." Eric explains his motivation to his sister, who is opposed to his running. "God made me fast," he says, "and when I run, I feel his pleasure." Eric runs not to prove something to the world, nor for mere fun, but to feel God's pleasure when he uses the special gift that God has given him. To win is to honor that gift.

It is Eric Liddel's motivation which matches most closely what current writers are saying about good leaders. Good leaders are not driven; they lead out of a desire for self-expression, a desire to use the gifts they have been given. And good leaders are not just opportunists; they have personal integrity. When the British officials at the Olympics try to pressure Eric Liddel to run on a Sunday during the Olympics, Eric refuses as a matter of principle, since the Sabbath is the Lord's day, and not a day for sport. Lindsey solves the problem by offering Eric his own slot in another race on another day. One of the British officials, the Duke of Sutherland, understands Eric and tells Lord Birkenhead afterwards that it is a good thing Eric refused to run on a Sunday. "He is a true man of principle," Sutherland says, "and a true athlete. His speed is a mere extension of his life, its force. We sought to sever his running from his self." In Eric's case, and in the case of great leaders, one cannot sever what one *does* from what one *is*.

Servant leaders have a different focus, and a different motivation, than most other leaders. They are focused on others, not themselves. And they are motivated to make life better for others, not for themselves.

The attributes or character traits of servant leaders are likely to include compassion, understanding, and selflessness. Their lifework is likely to focus on meeting the fundamental needs of others, such as food, clothing, shelter, education, jobs, and basic human rights. Colleges and universities have a major impact on at least three of these fundamental areas—education, jobs, and basic human rights. So you and your colleagues on your campuses are doing the kind of work that servant leaders do.

The Nature of Humankind

To serve others well, servant leaders have to *understand* others. They have to learn as much as they can about their fellow human beings—their fundamental needs, and their hopes and dreams.

Fortunately, the fundamentals are easy to identify. One useful list of fundamentals is Abraham Maslow's famous "hierarchy of motives" that describes various levels of needs. These are usually presented in the form of a pyramid. Basic needs at the bottom of the pyramid include physiological needs such as air, water, food, shelter, sleep, and sex. Then we move up to safety and security. Climbing farther up the pyramid, we find love and feelings of belongingness. Even higher, we find competence, self esteem, and esteem by others. Then there are a series of growth needs such as meaningfulness, self-sufficiency, effortlessness, playfulness, richness, simplicity, order, justice, completion, perfection, individuality, aliveness, beauty, goodness, and truth. Finally, at the top of the pyramid, we reach self-actualization.

I believe that basic needs include spiritual needs, and the needs of the soul. In virtually all cultures, human beings have pondered the Creator, the Divine, and those things larger than themselves that are part of the wonder and mystery of their lives. We human beings search for meaning; we search for ways to fulfill the longings of the soul.

The emphasis on different needs varies by individual and by culture. However, when it comes to human values, we are all more alike than we are different. In all countries, cultures, and centuries, there have been similar ethical codes and laws regarding the right relationship of one person to another.

This was demonstrated by C.S. Lewis in his book, *The Abolition of Man*. As a simple research project, he collected writings, laws, and customs in ancient and modern societies in different parts of the world. He found that all agree that it is wrong to murder or be cruel to other human beings; that it is right to love one's spouse; that it is right to give to the poor and to love and care for neighbors and strangers; that there are duties to parents, elders, and ancestors; that there are duties to children and posterity; and that there are laws of justice, good faith, truth, mercy, and magnanimity. C.S. Lewis quoted from Hindu, Roman, Norse, Babylonian, Egyptian, Jewish, Australian Aborigine, American Indian, Chinese, Greek, and Christian texts.

There is something about the nature of humankind that has led each culture to a very similar code of conduct. It seems to me that the codes of conduct are similar because the basic wants and needs of all human beings are similar. These include the need to love and be loved, to belong, to participate in community, to have a sense of self-worth, to have the opportunity to learn and grow intellectually and spiritually, and to find meaning, dignity, and peace.

This is of great importance. The similarity of basic human needs means that servant leaders can understand the people they seek to serve. And that means that they can serve them well.

I began by saying that love is the meaning of life. It is also essential to physical growth and survival. Maslow once wrote that love is as essential to the growth of a human being as vitamins, minerals, and protein. This was sadly indicated many years ago in a study in which observations were made of babies in orphanages. The babies were given food, water, clean clothes, and bedding. It was discovered, however, that if they were not touched or held, they died. They actually *died* for lack of physical contact, the simple everyday hugging and holding which are natural in every family.

This has special meaning for me. Four years ago, in April 1991, my wife and I returned to Honolulu from Romania with

two babies, a 14-month-old baby boy and an 8-month-old baby girl. The baby girl, Angela, had not been fed much during her first four months, when her birth family abandoned her at a hospital in Bucharest. She had whooping cough, she had pus coming out of her ears, she had open sores on her back. The nurses told us she was going to die before we could adopt her. When we first held her, she didn't move. She was just hanging on. Our baby boy, Spencer, had been abandoned



Past President Charlie Jenkins, right, welcomes Kent Keith to APPA's 1995 Annual Meeting in Philadelphia.

at birth, and was at an orphanage. He was being fed a kind of rice gruel, but he had been kept in a crib, with nothing to play with, and he didn't know how to crawl or walk, much less stand up.

Today, Angela and Spencer are 5 and 5½ years old, both happy and healthy. It is true that they needed food and medicine, but mostly, they needed what any human being could have given them: love and attention. When they began to receive that love and attention, they blossomed in an astonishing way. We feel very blessed to have them, and to be growing and learning while helping them to grow and learn.

What I conclude from all this is that human beings were built to run on love. We are designed that way. If we are not giving and receiving love, we are not operating on all our cylinders. We are not who we are supposed to be; we are not all that we can be.

I have said that love for others is the basis for servant leadership. It is also important to remember that when we give our love to others, it can change their lives in a wonderful way. When we see that change, and are touched by it, then our gift comes back to us, inspiring us and sustaining us as we continue to serve.

Relevance and Meaning

Servant leadership is the best kind of leadership for both the leader and the led. All other types of leadership become irrelevant to the needs of those being led, or result in the corruption of the leader.

It is really common sense. The leader who is not focused on others, will be focused on himself or herself. But the desires or needs of the leader may be in no way connected to the desires or needs of the rest of the organization or the rest of society. That is why it is easy for that kind of leader to become irrelevant.

Also, leadership that is not servant leadership easily results in the personal corruption or unhappiness of the leader. The leader who seeks power for himself or herself can never get enough. Never. Power becomes a disease, a drug, a fanatic drive, an addiction. After a while, it no longer matters what the power is for—the leader simply craves more and more of it. As the addiction grows stronger and stronger, the leader loses his or her values and becomes spiritually corrupt. And since

the leader can never get enough power, he or she is never happy. The victories mean too little; the defeats mean too much. He lives a life of frustration, restlessness, dissatisfaction, rage, and even self-torment.

Unfortunately, in the never-ending drive for power, the leader's ego becomes over-enlarged, and false pride, pettiness, crassness, spite, and a desire for conflict set in and take hold. The leader thus becomes an obstacle to the achievement of society's hopes and dreams. The over-enlarged egos of leaders have prevented an immense amount of good from being achieved in our world.

Servant leaders achieve an immense amount of good because they are relevant—they focus on the needs of others. Servant leaders also succeed because of their spiritual resources. Servant leadership provides the leader with something that power and its trappings cannot provide: personal meaning and inner peace.

A person who embarks on a quest for power will never be satisfied. A person

who embarks on a quest to serve others will always find meaning, and will always be at peace. He or she will have a reservoir of spiritual strength to draw upon. This is a secret of servant leadership—it provides the inner resources which make it possible for the servant leader to go on, to continue striving and serving others, no matter how difficult it may be.

The Three Options and the Paradoxical Commandments

When you love people, and you see that they have many needs, you only have three basic options:

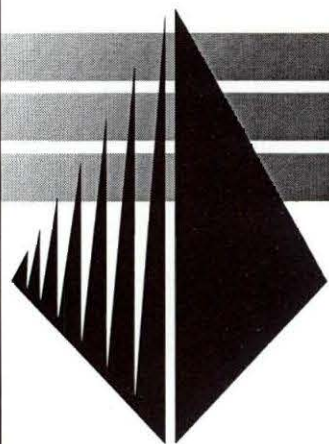
1. Do nothing, and ignore the needs of others—an option that is a moral failure; or
2. Take advantage of people's weaknesses, cynically exploit their needs, and seek personal gain at their expense—an option that is an even worse moral failure; or
3. Do the right thing—try to meet people's needs. The third option is the servant leader option, and it is the only moral one. That is still the right option, even if you fail to achieve what you hope to achieve.

This is important: A person who tries to do what is right and good and true, and feels that he or she has failed, may be tempted to shift to the cynical immoral option of exploiting others, or the indifferent option of doing nothing. But the servant leader option is the only truly moral option, even if things are not going the way you had hoped, or people don't appreciate what you have done, or people even attack you for the good you are trying to do.

The issue of appreciation is a big one. It is a big issue for those who serve, especially those who serve behind the scenes. A lot of good people are always being taken for granted, never being thanked. I imagine that in your work, people expect you to keep everything operating perfectly—100 percent perfect all the time. Since they view perfection as the norm, you get no credit for being perfect. However, if anything is less than perfect, by golly, you're going to hear about it. So, in their eyes, you can only fail.

In an environment like that, where people take your good work for granted and only give you input when they are unhappy, you have to have your own reasons for getting up and going to work in the morning. You also have

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The Paradoxical Commandments of Leadership

1. People are illogical, unreasonable, and self-centered. Love them anyway.
2. If you do good, people will accuse you of selfish ulterior motives. Do good anyway.
3. If you are successful, you win false friends and true enemies. Succeed anyway.
4. The good you do today will be forgotten tomorrow. Do good anyway.
5. Honesty and frankness make you vulnerable. Be honest and frank anyway.
6. The biggest men and women with the biggest ideas can be shot down by the smallest men and women with the smallest minds. Think big anyway.
7. People favor underdogs but follow only top dogs. Fight for a few underdogs anyway.
8. What you spend years building may be destroyed overnight. Build anyway.
9. People really need help but may attack you if you do help them. Help people anyway.
10. Give the world the best you have and you'll get kicked in the teeth. Give the world the best you have anyway.

to resist the lowering of standards. I have heard this many times, and so have you: The people we serve don't appreciate us, so why should we give them our best? The answer is that you have your own professional standards, and you derive a sense of meaning and satisfaction from doing a good job—no, a *great* job. And it doesn't matter whether anybody knows it or appreciates it. You still have to do what's right. You still have to be the best you can be. This is about *you*, not *them*. And you are a professional with high standards.

Each of us likes to be appreciated. I know that I do. I think that's normal. But it is hard to be a servant leader if applause is what you crave. Focusing on the applause means that you are focused on yourself, not others. Also,

people who crave applause are like people who crave power—they can never get enough. *Never*. No matter how much recognition they get, they are convinced that they are still being slighted.

Unfortunately, it is not just a matter of whether you get applause. Servant leaders are just as likely to be attacked, as they are to be praised.

I figured this out pretty early in life. By the time I was 20, I had discovered that you had to do what was right and good and true *because* it was right and good and true, not because anybody would appreciate it. Doing what was right and good and true gave me meaning and satisfaction that nobody could take away—and, for that matter, which nobody could *add* very much to, either. The meaning and satisfaction were mine, and they were sufficient unto themselves.

So at the age of 20, I sat down and wrote what now looks to me like a simple credo for servant leaders. It was 1968, at the height of the unrest on U.S. college campuses, and I was writing a booklet for high school student leaders

about how to work through the system to get things done. I challenged them with what I called "The Paradoxical Commandments of Leadership."

I think that servant leaders understand and accept paradoxical commandments like these. Servant leaders do what is right and good and true, whether they get no applause, indifference, or even a negative response. They appreciate recognition, but they are not in it for the applause. They like to be treated well, but they are not especially surprised or discouraged when they are treated badly.

The secret is to set high goals, and yet find joy in even the smallest improvement or advance. Servant leaders do not expect instant, total success. They keep their eyes on the goal, and they keep working.

This is dramatized in Jean Giono's story, "The Man Who Planted Hope and Grew Happiness." The man was a Frenchman who lived in Southeastern France at the turn of the century. He lived alone in a barren area that had once been a forest with its own villages. He went out each day and planted

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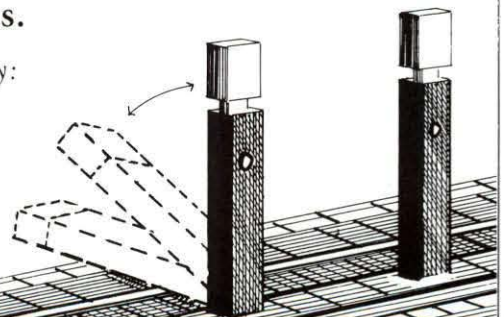
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trees. Year after year, decade after decade, seed by seed, he kept planting. The trees began to grow into a forest, which held water in the soil, so that other plants could grow, and birds could make nests, and streams could flow again, and people could return and build homes and raise families. By the end of his lifetime, he had totally transformed and restored the natural environment of an entire region. This is a good metaphor for the work of a servant leader, who works each day, planting hope and growing happiness for others. The work may seem simple and modest, and yet be powerful and long-lasting in its impact.

Those same words could be said to every parent, or guardian, or foster parent, about what they do to help their children: The work may seem simple and modest, and yet be powerful and long-lasting in its impact.

Servant leaders may accumulate power, prestige, fame, and fortune, and be a great success in the world's terms—or they may not. It is possible to be both a worldly success and a servant leader at the same time. But ser-

vant leaders know that the challenge is to not set worldly goals as the final goals, because if they do, those worldly goals may take their eyes off the people whom they wish to serve. And success, for the servant leader, is ultimately defined in terms of those they serve.

Deciding What to Do

How do servant leaders decide what to do? Certainly, some of the things that servant leaders do, they do as a result of their analysis of world or national problems. War, starvation, disease, and environmental degradation are big problems. Crime, unemployment, racial discrimination, health care, substance abuse, and education are big problems.

In addition to world and national problems, servant leaders often deal with issues or events that are right in front of them, directly affecting them or their families, friends, and neighbors. They often work on problems which they just happen to come across, as in the story of the Good Samaritan. The Good Samaritan saw a man who was injured, at the side of the road, beaten

by robbers. He went to him, bandaged his wounds, took him to an inn, and took care of him.

Apparently, the Samaritan did not debate with himself as to whether there might be somebody with a greater need further down the road, or on another road, or in another city, or in a different season. He apparently did not argue with himself as to whether he was the right man to help, or whether he had the time to help, or could afford to help, or whether somebody else should come to help instead. He didn't say this is a rural problem, outside his urban jurisdiction. No—he saw a need, right there in front of him, and he acted.

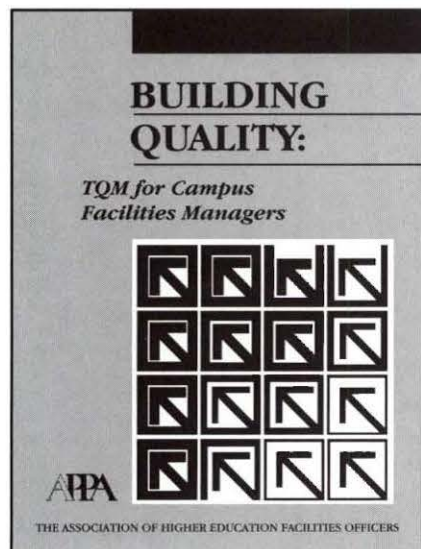
That is what life is like for many servant leaders. They live each day, discovering needs and addressing them. Their biggest challenges as servant leaders may be ones that they just happen to come across, or are right in front of them, like the man lying injured by the side of the road.

Servant Leadership on Campus

So far, I have been talking about who we are as individual leaders—how we see leadership, what motivates us, our sense of meaning, and how we decide what to do. This is philosophical and personal. It may not seem very practical.

In fact, I can't think of anything *more* practical. People who work with you, or for you, or for whom you work, will judge your character pretty quickly. They know almost instantly whether you are in it for power, or for service; whether you are focused on yourself, or on others. They know if you are willing to listen, or only to speak; whether you want to help *them* succeed, or see them only as pawns to be manipulated for your own success. They may perceive you correctly or incorrectly, but these perceptions color all of your relationships. These perceptions either enhance or limit what you are able to accomplish as a leader.

If you are a servant leader, you will find that your relationships are enhanced and your ability to facilitate accomplishments is expanded. When it is clear that your focus is on the needs of your institution, those who work there, and those you all serve, then more people will listen to you, and more people will trust you. A few, of course, will be suspicious or confused, and wonder what you are *really* up to.



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However, most will understand, and will be truly grateful.

Being a servant leader is especially important during hard times. We all know that higher education in the United States is going through a difficult, and important, period of cutting and shaping—a period of reconsidering what is being done, reaffirming that which is good, and cutting or reallocating from areas of lower priority to areas of higher priority. You have already made many hard decisions, and you will be making many more. The changes you need to make will not be effective unless people understand them, and however reluctantly, accept them. Few will follow you into the new paradigms unless they trust you, and believe that you are acting for the good of the institution rather than for your own power or position.

To make a change stick, you have to bring most of the people with you. *They* have to make it stick, by understanding and supporting it. Otherwise, it won't happen. You can get excited about change, blow your trumpet, jump on your horse, and gallop off—to discover that nobody is following you. People *will* move forward if they have been part of a process which helped them to understand where they need to go and why, and includes some of their own ideas about how to get there. People *will* move forward with a servant leader. They'll need a little time to find their horses, and get their saddles adjusted, but they will move forward.

All this is true of any organization undergoing change. However, it seems to me that servant leadership is especially appropriate as the leadership model for colleges and universities. Colleges and universities need strong leadership and clearly assigned responsibilities at all levels of the organization. However, colleges and universities also need to share governance and operate in a collegial fashion, with consultation, participation, and information-sharing throughout the campus community. The challenge is to achieve *both* strong leadership and collegial, campuswide participation.

The power model of leadership is *not* well suited to collegiality and participation, since it focuses on obtaining and using power to make people do things. The power model presupposes and even promotes conflict. Leaders using the power model tend to be more autocratic.

The service model, by contrast, focuses on identifying and meeting the needs of others. The service model presupposes and promotes collegiality, with consultation, participation, and information-sharing as part of the daily life of the organization. The service model is also open to everyone, regardless of where they are in the power structure. Each faculty or staff member, each administrator or trustee, can identify and help meet the needs of others. Each faculty or staff member, each administrator or trustee, can be a servant leader.

Many colleges and universities are working hard on customer service or student-centered service. It seems to me that the concept of servant leadership provides us with an important philosophical foundation for the service model. If we love people, and care about them, we want the best for them. We want to identify their needs, and seek to meet those needs. In our daily lives on our campuses, we want to pay attention to our students, and strive to serve them well. We also want to pay attention to each

others' needs, as colleagues, and respond to those needs, so that all of us, as a team, can serve our students well.

Conclusion

Let me conclude by affirming that the world needs many, many more servant leaders, facilitating, healing, focusing on the needs of others. No other leadership role requires as much wisdom, compassion, strength, and skill as servant leadership. And no other leadership role is as exciting, meaningful, and satisfying as servant leadership. It is a role that will draw upon all that you are, and stimulate you to grow and become all that you can be. It is a role that is badly needed in each family, each college or university, each community, each nation.

I call you to servant leadership and commend it to you as the basis for your life's work. I ask you to carry with you this simple idea: to be an effective and relevant leader who finds meaning and peace in using his or her talents, one *must* be a servant leader, dedicated to making life better for others. ■

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BEYOND

RECYCLING

Getting Off
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In the Winter 1992 issue of *Facilities Manager*, an article was published, titled "Solid Waste Management: A Paradigm Imperative." The imperative for a proactive solid waste management program was acclaimed, and the author concluded that "The imperative for such programs has been established by economics, legislation, environmental concerns, and ethical issues." The key intent of the article was to encourage the growth of recycling programs on college and university campuses. In the past three years there has been a rapid growth of recycling efforts on university and college campuses in the United States, many programs meeting with varying degrees of success.

Alan Bigger is director, building services, at the University of Notre Dame, Notre Dame, Indiana. He is a coauthor of APPA's popular book, Custodial Staffing Guidelines for Educational Facilities. Linda Thomson is assistant director, purchasing department, at the University of Notre Dame.

The necessity to have a proactive solid waste management program that includes aggressive recycling still exists, and the pressures to recycle continue to grow. The June 13, 1995 issue of *Waste Age's Recycling Times*, indicates that 37 out of the 50 states have established recycling and waste reduction goals. Some of the states are requiring 35 percent diversion of the solid waste stream by 1996, and 50 percent by 2001, Indiana is an example of such a state. On September 20, 1993 an Executive Order was issued by President Clinton. The Executive Order is a far reaching document that pledges that governmental agencies will establish "cost-effective waste prevention and recycling activities—work to conserve disposal capacity, and serve as a model in this regard for private and public institutions...." The guidelines presented by the Executive Order have been integrated into the expectations of many states.

The federal government, in the Executive Order, went far beyond just standard statements about recycling and solid waste management, and started to expand solid waste management into a more holistic program to include such elements as "Environmentally preferred products" (Sec. 201), terms such as "post consumer material" (Sec. 203), "recovered material" (Sec. 205), the "recyclability" of products bought (Sec. 206), and such terms as "waste prevention" (Sec. 208), "waste reduction" (Sec. 209), "life cycle cost" (Sec. 210) and "life cycle analysis" (Sec. 211). It is becoming abundantly apparent then, that recycling is more than just trying to collect cans; it is the whole process, from product acquisition

ONND

by Alan S. Bigger, R.E.H.,
and
Linda B. Thomson, C.P.M.

through product use, reuse, recycling, or disposal. Collecting the products on a campus for recycling is just a very small part of a total whole.

Jumping on the bandwagon of the Executive Order, the Environmental Protection Agency recommends that procuring agencies set minimum-content standards for paper and paper products containing recovered materials. More recently the EPA has developed a program called WasteWiSe, encouraging recycling and proactive waste management, with specific emphasis on source reduction, re-use and re-marketing of recycled or potentially recyclable products. (For more information about WasteWiSe, contact the EPA at 1-800-372-9473.) The EPA recommends that organizations set up three significant waste prevention goals, expand the collection of recyclables and increase the purchase or manufacture of recycled products.

So the pressures continue to exist for university campuses to increase the scope of their recycling and waste management programs. The legislation continues to mount at the federal, state, and local levels. As the number of landfills available for the disposal of our waste continue to decrease, the tip charges for our waste disposal will continue to rise. An active program that integrates a thorough assessment of how and why a product is brought into the operation, how it is used, its potential for re-use or recycling prior to discard, will enable organizations to reach the established goals and recover resources. In turn this may have a significant impact upon the bottom line economics of the organization. APPA membership comprises of schools both large (over 5000 FTE), about 35 percent of the membership, and small (under 5000 FTE) at about 65 percent. Ultimately every organization, whether large or small is faced with the same challenges.

The original article in Winter 1992 stressed the establishment of a proactive recycling program, concentrating on how to get off of ground zero. The purpose of this article is to take the next step and provide the solid waste or recycling manager with a decision-making model. The model can be used to

determine which materials to recycle and how to prioritize your approach to them. Methods to maximize the recoverability of resources as products leave your system are emphasized in the model, as well as methods to minimize waste by controlling what enters the system. For example, you might decide to recycle cardboard (or, as it is called, OCC), and collect this on campus. Once it's collected, what do you do to get rid of it? Who do you "sell" it to, and what is a fair recovery price? Do you bale it, do you send it out loose? Many schools and universities are becoming captive to the local brokers in the marketplace, unaware that they are not receiving full value for the resale of their recyclables. A large hotel in Boston is baling their cardboard, receiving no returns for their end product! In another area of the country, one institution until recently was receiving \$15 a ton for baled cardboard! Upon investigating the marketplace and placing the sale of the recyclable paper products on a competitive basis using a request for proposal (RFP), the dollars per ton soared to over \$150 a ton, overnight! (Note: Market prices are subject to fluctuation on a weekly basis.) Such potential was in the marketplace, but brokers were not sharing this information. By using a proactive decisionmaking model, and systematically gathering information, the manager can make a better decision on the most efficient and effective method to handle the resources generated in the waste stream.

The Model and Explanation

This model is structured to assist the manager in identifying key issues and to encourage learning more about the products

that flow through the university. These are the first steps toward accomplishing continuous improvement in the management of the solid waste stream. The products that come into, and go out of, a university system can be treated very much like an industrial food chain of the organization. What comes in either has to be used up, reused, recycled or discarded. Many introductory recycling articles have been written, and many if not most, institutions are currently involved in some form of recycling. Managers can use this model as a tool to help them cope with their existing programs, while gathering information in preparation for expanding into the realm of marketing their collected recyclables.

The model consists of a set of concentric circles. Most recycling coordinators are as busy as the proverbial worker bee, and need to have at their fingertips a manageable tool for effective decision making in the recycling realm. The circular format is intended to reinforce the idea that several activities must take place simultaneously and remain on-going. In that sense, the circle is like a living organism, always in a constant state of flux and change. Once these activities, depicted in the inner circle, are completed and fully integrated into the recycling program, then the program will tend to move toward the elements in the outer rings. These activities require a complete understanding of your institution and capabilities in conjunction with understanding the markets that exist for recycled products. Thus, each ring represents an additional level of learning. As one proceeds through the model, not all steps may apply, on the other hand, as one graduates from the center ring outward, some question might arise that would force you to return to the center.

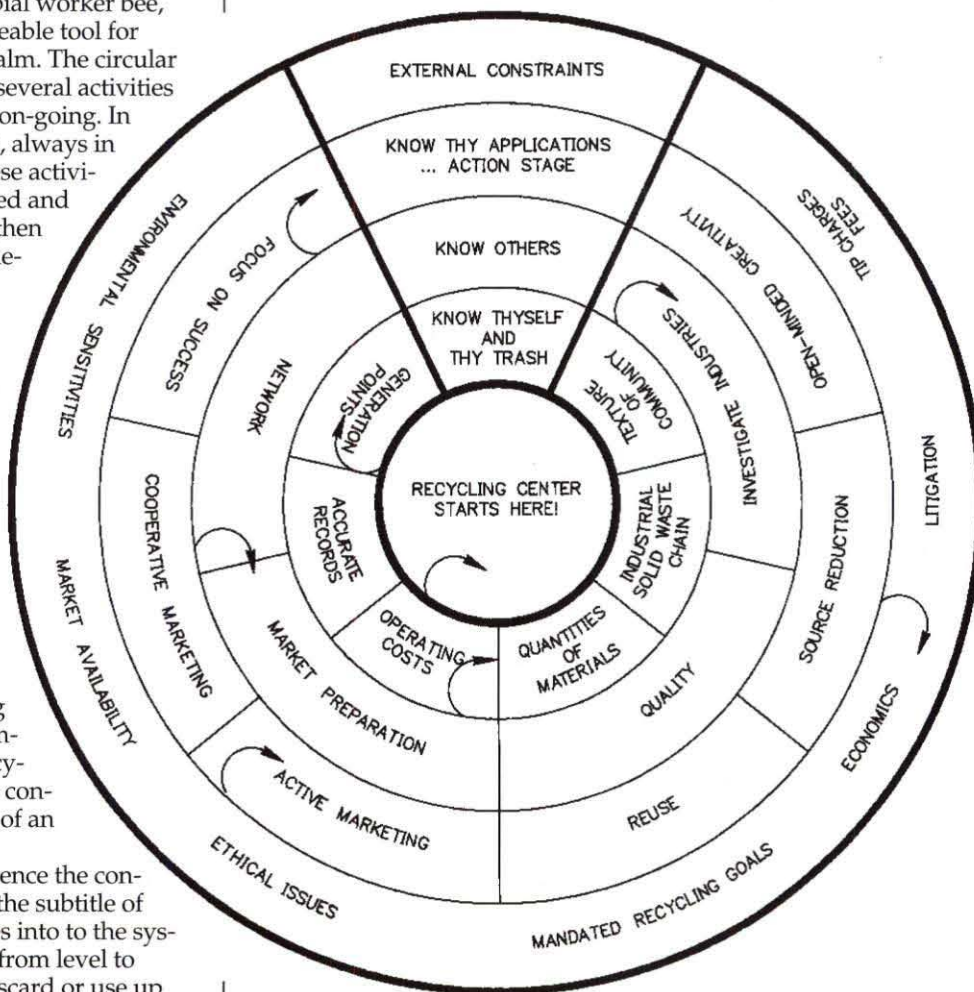
The process represented by the model can be applied to an entire program or to individual materials. Each institution and recycling program must operate within its own unique set of constraints. The outer ring of the concentric circles represents many common issues that influence the direction of recycling programs. Failure to comply with such constraints can restrict and frustrate the growth of an effective recycling program.

It is intended that one start at the center (hence the concept "getting off dead center" mentioned in the subtitle of this article), and work the product that comes into to the system through each appropriate step, moving from level to level until a decision is made as to how to discard or use up the item. The outside circle represents those external constraints and issues over which the institution may have no control, such as environmental sensitivities (for example, some states and communities may ban yard waste from area landfills), economics (escalating costs), legislation (mandated recycling goals), and other issues such as ethics and environmental philosophies.

The process illustrated by the model will work for any material no matter how simple or complex. For example, one organization may wish to recycle a common item such as aluminum cans, while another organization may be considering the issue of recycling fly ash from a power plant. Each material is subject to a series of issues that need to be studied and addressed prior to the start of collection and processing. The

effectiveness of the model, and thus the decision, will be based upon how well you collect data and become informed about the product that you are trying to process through the model. Throughout the entire process, it is intended that the model be used in an interactive mode, and implied that you will constantly interact with the questions, the professionals in the field, and any other resources that can enable you to make solid decisions. The benefit of the model lies in stressing the synergistic nature of all the elements on a campus and in the local community working together!

The innermost circle illustrates the need to collect internal information and data about your organization. This stage could be titled **KNOW THYSELF AND THY TRASH!** This



data will be unique to you and your organization. Many questions need to be asked at this stage, such as:

1. **Texture of your community:** What is the texture of your community? This could address the number of FTEs and the number and the types of buildings (academic and administrative building waste streams may vary vastly from the waste streams of residence halls). Other issues that could impact your assessment could include the ages of the students (undergraduate versus graduate), the residential nature of campus versus commuter population, etc. It is even possible that the majors or technical disciplines

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offered can have an impact. For instance, persons that are majoring in architecture may be developing mock models of buildings, generating a lot of wood and related wastes, whereas computer majors may generate large quantities of recyclable papers. Colleges that specialize in such fields as hotel or restaurant management, medicine, or liberal arts may have very different recyclables and solid waste than schools that do not offer these areas of study. Some readers in school districts may recognize a significant difference in trash flows from elementary schools versus high schools.

2. **Industrial solid waste chain:** What materials make up your industrial solid waste chain? One institution may have 50 to 60 percent paper products; however, your institution may be very different. In other words, audit what you have in your waste chain! What is the single largest component of your waste stream? Understand why this is the case; consider whether this is subject to seasonal conditions or whether this is likely to change in the future. The Environmental Protection Agency has published an excellent resource titled *Business Guide for Reducing Solid Waste* (November 1993), which contains clear instructions for performing a simple in-house audit.
3. **Quantities of materials:** What quantities of materials are you talking about recycling? For instance, at many institutions there has been a drive to recycle polystyrene, and a tremendous amount of effort and resources have been directed to collect this product. Is this time and money well spent? That may be questionable, and only your organization can make the decision. According to available statistics, less than 1 percent of the waste in a landfill is polystyrene, thus is it worth the collection and recycling effort? Do you generate 100 lbs or 100 tons of corrugated per week, per month, or per year?
The amounts that you generate and how rapidly you accumulate the material will have a significant impact upon your decision to try to market a product. If you do not know the composition of your waste stream and the quantities generated, it is impossible to develop a plan to recycle or market the material effectively.
4. **Operating costs:** Closely associated with item 3 is the need to know operating costs for your institution's recycling program. Some institutions may be able to recycle at minimal costs, whereas, because of the division of labor among certain trades, costs could be higher at another. Identify the costs for trash hauling, fees, potential fines, etc. Know the basic labor rates involved. Some institutions may have ample labor but no equipment; others may have the opposite scenario. Additional costs could include the cost of new equipment and maintaining the equipment, vehicle costs (i.e., fuel and repairs), warehouse space, utilities, etc. This information will help you to evaluate the economic feasibility of your marketing plan.
5. **Accurate records:** At this stage while you are gathering data and thereafter, it is imperative to keep accurate records. Measure and record the quantities of each specific type of material. Baselines need to be established; if you are directed to recycle 50 percent of your waste stream by a certain date, and you have no baseline, what are you recycling 50 percent of? Accurate records will allow you to track your growth and your efficiency.
6. **Generation points:** Finally, understand where your solid waste is generated. Determine how the materials enter and

are utilized within your system. For instance, in the article in the *Facilities Manager* mentioned earlier, the analysis of a sample campus indicated that residence halls generate a different kind of waste than that which is discarded from academic related buildings. The article highlighted the significantly larger quantities of cardboard generated in residence halls versus the traditional academic building. The primary reason? Pizza boxes!

As you perform your analysis of how your solid waste is generated, you may have to ask some pertinent questions. For example, if you are generating a large amount of plastics, in comparison to comparable institutions and organizations, consider why this is occurring. Maybe your vending department is selling soft drinks in plastic bottles rather than glass. Is this a viable use of materials versus the use of either aluminum cans or glass? It may be determined that using aluminum cans will make the item easier to recycle with a higher return; on the other hand, it may mean that the lighter weight container keeps total costs under control. You may not earn money by marketing plastics that you generate, but it still may be an environmentally responsible option to recycle this material. The key issue is to thoroughly understand where you generate waste and why.

As you progress through the steps 1-6 in KNOW THYSELF you may find that you need to go back and collect more data and acquire a better understanding of a product or of how a given product is processed within your institution. As you do this, additional facts and insights may trigger new ideas for the use or collection of these materials. You may find that you need to define (or subdivide) more categories of products for data collection and measurement. For instance, you might have started with office paper, but soon discover that "office paper" can include such categories as white paper, mixed paper, magazines, and even "junk mail." (And believe it or not there are markets for junk mail!)

The next ring of the decisionmaking model, proceeding outward, addresses a group of issues called KNOW OTHERS. In other words, at some point you will need additional information from outside your organization in order to make your recycling program more effective. Initially, it may be sufficient to know that you are keeping items out of the landfill, but in this day of constant improvement, eventually this will not be enough. As you seek greater efficiencies and cost containment, the possibility of marketing your recyclables offers a new set of opportunities and challenges. Before you begin to sell your wares, some homework is required. This stage will be the most intensive, at least from a learning experience and time commitment standpoint. Don't let this intimidate you! The necessary information will take time to collect, but does not necessarily have to be collected overnight. It is worth the effort and is necessary in most situations to fully understand the elements of a total waste reduction program. As you review the model, moving from the center outward, it will be discovered that this stage of acquiring information will be ongoing; it should even be habit forming! Collecting this information will require you to start getting out of the office and to start doing some, if not all, of the following steps:

1. **Investigate industries:** Investigate the industries that can utilize the recycled products that you generate. This might mean that you will visit paper mills, scrap yards, or companies that recycle plastics. A visit to a scrap yard will

show you how the material is collected and prepared for the next stage of recycling. Learn how the processors of the items that you will generate actually use the product. Ultimately, this will also assist you in learning how to better prepare the item for market. Your organization may be recycling cardboard products and a knowledge of how this product is processed by the mills will enable you to have a better understanding of the marketplace and some of the foibles. For instance, what does the cardboard you recycle end up as—cereal boxes? If this is the case, metal particles mixed in with the cardboard (i.e., large box staples) could pose a problem to the cereal company filling the boxes.

Many states are now requiring the recycling of automobile tires. Should your organization be recycling tires, it would be useful to know how the tires (chop the tires up), and what the end product is (road surfaces, etc.)

Understanding how the product is used by industry will enable you to communicate the need for recycling the product in an intelligent manner. Another example of a product that is often recycled on a university campus is glass. One needs to learn how the recycled glass is used or processed. Is it melted to become new containers or ground for use in tiles or road surfaces? Does the industry receiving the glass want it ground up prior to shipment to their facility or can the glass be shipped as whole pieces in its original state (example: whole glass bottles)?

One final example. Paper recycling programs have become very popular. A visit to a paper processing mill can provide invaluable experience and knowledge on how paper products are received, processed, and used in the mill. Learn how they process the recycled paper. Is it turned into pulp or used in wall insulation, etc.? It is important to understand the ramifications of preparation of items for the mills or end users, the problems with contaminants in the manufacturing process, and the best way to prepare items for the industry that will end up using the products. Industry groups can help provide you with this information.

2. **Quality:** Investigate the level of quality necessary to market the product. Some industrial applications do not mind certain degrees of contamination and can be quite tolerant. Others take exception. For instance, if you plan to collect and recycle "white paper" (anticipating a return of \$200 to \$300 per ton!), you must recognize that groundwood paper (newspaper) is a contaminant in this grade. If these two types are baled together, the material will be downgraded, and you can expect to see the return rate drop significantly. (See Table 1 for some examples of quoted rates for recycled paper products). A downward change in grade can have a large economic impact. The Institute of Scrap Recycling Industries, Inc. (ISRI), publishes a Scrap Specifications Circular on a yearly basis for non-ferrous scrap, ferrous scrap, glass cullet, paper stock, and plastic scrap. This publication defines the types and grades of these items, and provides useful information to assist organizations that recycle to prepare their materials for market in a manner that is acceptable to the marketplace. The address for ISRI is: Institute of Scrap Recycling Industries, Inc., 1325 G Street, N.W., Washington, D.C. 20005.
3. **Market preparation:** Learn from the industry how items need to be prepared for market. Steel and aluminum cans could be marketed comingled or separated (Generally, co-

mingled products will generate less revenue). When marketing newspapers to a paper broker or paper mill, magazines may be mixed in at times. However, if the paper is marketed to become insulation, the glossy stock may be unacceptable. Thus, it is important to consider what level of separation and quality you can successfully generate. Investigate the relative prices for different methods of preparation and evaluate in light of the quantities of each that you generate to determine the level of preparation appropriate for your organization. Some systems may allow for the product to be loose in gaylords (large, open-topped cardboard boxes on pallets), others will require the product to be baled (in industry-standard size bales). You must also consider how rapidly you generate the material; this will have an impact on your choices. Preparing the material in the most marketwise fashion will enable you to maximize the return.

4. **Network:** Network with professionals throughout the trades as well as at other institutions. Many different professional organizations address environmental issues. Do not forget to network with others in your own institution as well, and to encourage your colleagues to share their knowledge and their observations about issues that impact upon your program. Networking is becoming much easier and less expensive with the advent of Internet, e-mail, World Wide Web, and list servers. Several list servers throughout the United States can provide you invaluable feedback by just punching some buttons! Read various publications, be receptive and watchful for new and potentially helpful ideas. Many typical business weeklies include environmental or recycling topics and these may provide invaluable gems of information.

Once you have accumulated sufficient internal data and external market knowledge and data, now is the time to move to the third circle from the center. This stage is probably the most exciting because it pulls together a variety of issues, and could be considered "KNOW THY APPLICATIONS: ACTION STAGE." This stage addresses some of the following issues:

1. **Open-minded creativity:** From the very outset, maintain an open mind and creative outlook. Be open to new ideas and be receptive. Maybe you can recycle those old tires? Many states no longer allow for tires to be landfilled, so it is becoming imperative to recycle tires. The asphalt from road surfaces, which used to be discarded, can now be recycled. Old tree limbs can be chipped up and used for mulch. Laundries that used to discard millions of gallons of water a year are now recycling the water they use. The list goes on. Are we open to the alternatives? Once you have a "recycling" outlook, you may meet persons in unlikely places that may become invaluable contacts for the future. For example, one organization was trying to learn about the plastics industry, and one of the managers happened to be traveling on an airplane to Boston. A conversation ensued between the manager and the person in the seat beside him. It turned out that the person was the president of a large company directly involved in the plastics industry. During the flight much information was exchanged, and all painless and free! Keep your eyes, ears, and mind open!

2. **Source reduction:** After analyzing your internal constraints and the external marketplace, the question might be asked, "Should we have even brought the product in the first place, or should we have source reduced?" An example of this may be wooden pallets. Perhaps you determine that 600 wooden pallets a year come into your system, and after evaluating the marketplace you find out that there is no ready market for the reuse or recycling of such pallets. Six hundred pallets spread over a year may be too few to readily market.

Therefore, maybe all the pallets should be returnable, so you can avoid the issue of disposal. A second alternative would be to substitute pallets made out of cardboard, and recycle them with your corrugated. This alternative would be beneficial if you have an active cardboard recycling program and a market for cardboard. If you have neither a recycling program for cardboard nor available markets for disposal of cardboard, then it would be better not to bring the item into your industrial food chain at all.

Another strategy is to stop the item being received at your facility. For instance, some manufacturers of commercial residence hall furniture package their products in boxes. If you do not have a cardboard recycling program, a lot of cardboard will end up in the landfill. It may be appropriate to ask the manufacturer to blanket wrap or shrink wrap the furniture, and to have all blankets, shrink wrap, and any subsequent packaging removed by the manufacturer once the furniture is unloaded. (Note: Shrink wrap can also be recycled if you have a method to bale it and available markets.) Similar suggestions may be made with regard to plastic or glass, particularly in institutional food production areas.

3. **Reuse:** At this stage you may find that another area on campus is able to reuse the item thus saving the university assets. If you have to bring the product into the system, maximize reuse. As you examine your waste flow, you may find that you generate a lot of products that can be resold through your materials management division (computers, office furniture and equipment, etc.) and reused on campus. You may also discover that some items are ideal for donation to charitable institutions. Shared use planned at the time of purchase may be another way to reduce the quantity of products or equipment coming into your system. Two departments that have a periodic use for a costly piece of office equipment may find that they could share the same piece of equipment.

TABLE 1: SAMPLE TRANSACTED PAPER STOCK PRICES

(Note: This is an extract only)

MARKET AREA	MIXED PAPER (1)	NEWS (6)	OLD CORRUGATED CARDBOARD (11)	SORTED WHITE LEDGER (40)
CHICAGO	\$80-100	\$110-120	\$125-135	\$320-330
BUFFALO	\$80-100	\$110-120	\$130-140	\$345-355
NEW YORK	\$95-105	\$110-120	\$130-140	\$345-355
SOUTHEAST	\$80-90	\$120-130	\$130-140	\$345-355
SOUTHWEST	\$90-110	\$120-130	\$145-155	\$345-355
LOS ANGELES	\$85-95	\$165-175	\$140-150	\$325-335
SAN FRANCISCO	\$85-95	\$155-165	\$135-145	\$325-335
PACIFIC NORTHWEST	\$95-105	\$150-160	\$140-150	\$195-305

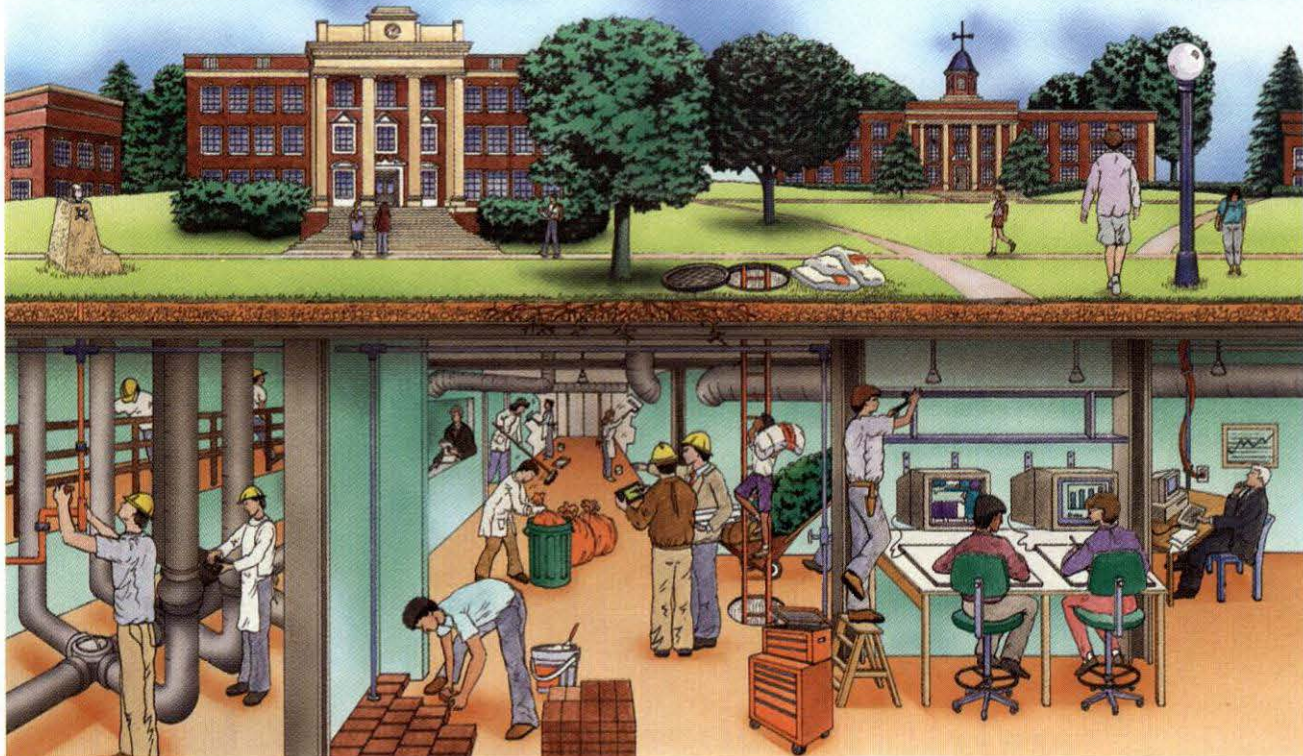
Source: Official Board Markets The Yellow Pages, Volume 71, Number 27, July 8, 1995, p. 11

4. **Active marketing:** If you find that you have a relatively consistent collection rate of marketable quantities, maximize your returns! Identify what you have, apply the industrial information you have gathered, and package the product for the marketplace in the manner requested by the marketplace. To achieve a fair value and really learn about the market, develop a request for proposal (RFP) for selling the product, tying the price of the commodity that you wish to sell to some percentage of market values as published in trade journals or newsletters. For instance *The Official Board Markets: Official Yellow Sheets*, weekly quotes the current market prices for paper commodities by region (See Table 1). Waste Age's *Recycling Times* publishes a listing of multiple commodity quotes as collected by a survey method (includes aluminum cans, scrap metals, copper and brass, plastics, paper, glass, steel cans, and other miscellaneous prices) by region.
5. **Cooperative marketing:** If, as you go through the decision making process, you determine the quantities that you generate are not viable, consider establishing a "cooperative" with like institutions in your area. Pool your collected recyclables and then approach the market. Several school districts have done this quite successfully.
6. **Focus on success:** Finally, concentrate on those commodities that will generate success, and then build upon the successes. Success stories will generate more enthusiasm and support.

Working through the stages of the model and making an effort to educate yourself will help you prioritize the stages of your program as they fit into your particular set of circumstances and constraints. After you have moved through the circle, you may discover that you reach various options or decisionmaking points that may require you to rethink your whole process—you may actually recycle your

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continued from page 38

thinking! Applying the steps in this model should stimulate your thinking to develop alternatives to help you maximize the recovery from your resources.

Your final choice or decision may be dictated by internal policies, economics, or philosophy. In addition, there may be many external constraints over which you have limited or no control, and these may be unique to the com-

munity or state in which you are located. Some of the potential external constraints are displayed in the outer circle of the model, and include such issues as tip charges and fees, litigation, economics, mandated recycling goals, ethical issues, market availability, and environmental sensitivities.

In conclusion, the key elements of any recycling and waste management reduction program still comprises a series of "Rs." The EPA increasingly emphasizes source reduction. Seek out

alternative solutions so you avoid bringing in troublesome items, so that reuse or disposal is not an issue. If you cannot avoid bringing in the product, use it and reuse it as long as possible, until the life span is complete. Recycling is an option to maximize the returns from that which leaves your facility without having it go to the landfill. The model developed here, encourages a total reassessment of the whole process, by analyzing why we do what we do, why we bring the item in, and then by rethinking ways to remarket the items for potential resale with maximal benefit to your organization. Some examples of money recovery operations that did not exist just a few years ago:

1. Newspapers, when packaged for market, can actually make money for you.
2. Magazines, which for a long time no one would take, can now be recycled. Several limited markets are offering upwards of forty or fifty dollars a ton. (For additional market prices, see "The Markets Page" in *Recycling Times*.) Even though there may be limited monetary returns, by diverting this item from the landfill, tip charges would be saved.
3. Fly ash from power plants and the recycling of such fly ash may have economic returns as well. (Europeans have been using fly ash in concrete and cement blocks for many years, see article in *Mechanical Engineering*, "Using fly ash for construction," May 1995, pp. 82-86.)

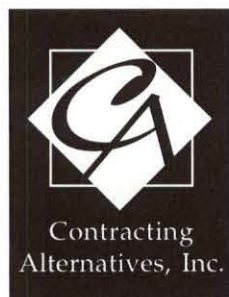
These are just a few examples of the potential markets that are available to us as we generate a solid waste program that encourages us to know ourselves, know our products and how to prepare them for market, and to apply what we have learned to enable us to take positive actions that will impact upon the very way that we do business. By making informed decisions about our solid waste stream, we will be able to unlock the resources that are available in our industrial food chain, for solid returns. You may throw it away, but in so doing you could be throwing away recoverable resources and monies for your institution. You may market your recycled products in a less than marketable manner, and you will not maximize your recovery dollars. By stressing good data gathering, knowing your organization and your markets, and taking action based upon a well-developed plan, you will greatly enhance the effectiveness of your overall solid waste program as we move into the next century. ■

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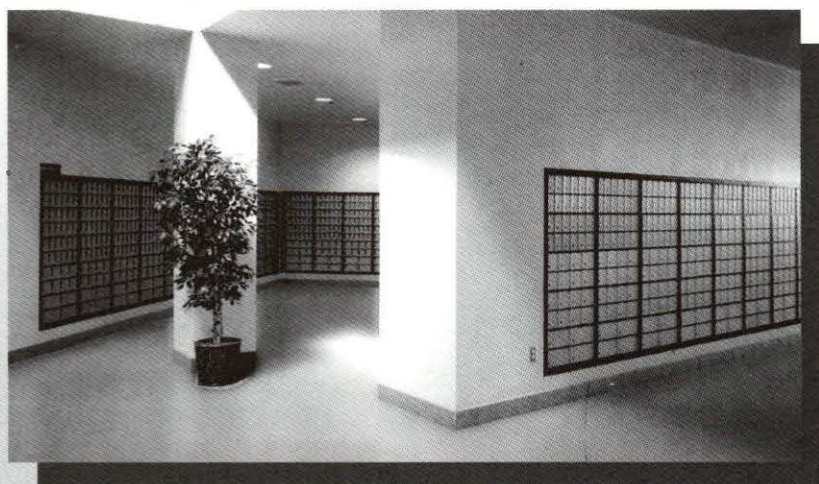
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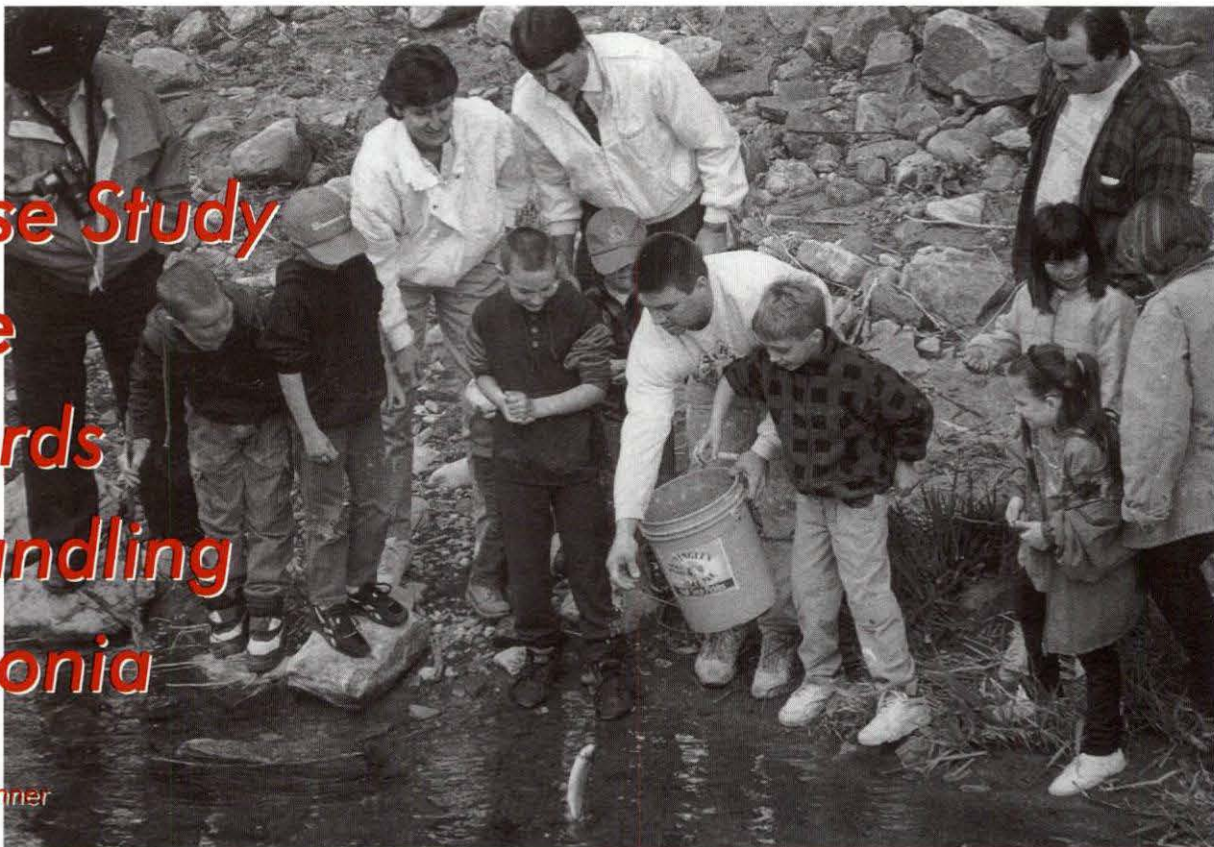
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What Kind of Tiger is in Your Tank?

A Case Study of the Hazards of Handling Ammonia

by Dr. Anne Skinner



Williamstown children release trout into the Green and Hoosac rivers as part of the Williams College restocking program.

photo by Robert Burns

In August 1994 an accidental release of ammonia from the Williams College hockey rink resulted in a significant fish kill in a local stream. Officials of EPA Region I note that ammonia is a major source of problems. This case study is presented in hopes of preventing similar problems in the future.

Dr. Anne Skinner is lecturer in the Chemistry Department of Williams College, Williamstown, Massachusetts. She also serves as a safety consultant to the college in the area of hazardous waste.

Ammonia

Anhydrous ammonia is a colorless gas, lighter than air and extremely toxic if swallowed or inhaled. While it has been used for years in the manufacture of fertilizer, and also found at natural gas plants, its usefulness as a refrigerant has meant a considerable increase in both the amount of ammonia in use and the variety of locations in which it can be found. Ammonia appears on the list of extremely hazardous substances (EHS) prepared by the EPA in connection with the Community Right-to-Know act, commonly called SARA Title III. Any facility that possess an EHS in excess of an amount called "threshold planning quantity" must report this fact yearly to the local emergency planning committee, so that there can be an orderly response in the event of an accidental release or spill. Because academic institutions do not normally have large amounts of any single hazardous substance, many are not familiar with this requirement. For ammonia, the threshold planning quantity is 500 pounds, an amount easily exceeded by a cooling facility of the size needed for an ice rink. For Williams College, ammonia is the only reportable EHS.

Ammonia is also corrosive, and attacks in particular copper-containing materials. Not only should it be handled in iron or steel piping, the nature of any solder used must be examined.

Gaseous ammonia should not be confused with the "ammonia" found in many common cleaning agents. When mixed with water, ammonia forms ammonium hydroxide. While the resulting solution may be strongly alkaline, ammonium hydroxide is not an EHS and therefore in calculating whether an institution possesses more than the threshold amount of ammonia, cleaning agents need not be considered. However, the fumes given off by the cleaning agents are gaseous ammonia, and can be used to familiarize workers with the odor so that they can detect leaks and other releases. Furthermore, ammonium hydroxide, like ammonia, can react with chlorine compounds to release chlorine gas.

The Incident

During the 1994 hockey season, a small water (non-ammonia) leak was detected in the cooling tower of the College system. The leak was patched, but at the end of the season the system needed to be completely emptied of ammonia so that more thorough repairs could be done. The normal procedure at the end of the season is to pump down the system, transferring approximately 90 percent of the 1,500 pounds of ammonia to a holding tank, leaving the remainder in the cooling tower but at a pressure not likely to cause corrosion or leaking. The holding tank will, in fact, hold the entire amount, but transferring the last portion is relatively difficult.

On Wednesday, August 10, a crew of college steam fitters notified the local water treatment facility that they intended to transfer a significant amount of ammonia to the sanitary sewer. Having received permission to do so, a licensed air-conditioning mechanic began to mix the ammonia with water and send it down a drain within the building. Work continued all day Thursday. Thursday evening during a routine check of the building, security staff noticed an extremely strong odor and called campus safety personnel. Ventilation during the day had apparently kept the concentration of ammonia below irritating levels, but it was later decided that the traps in the drain had probably not had sufficient water in them, and thus the fumes had built up once work had been completed for the day. Both because of potential hazard to the workers on Friday, and because there were plans to use the building for a summer tennis camp, it was decided to move the mixing and disposal operation to a drain outside the building on Friday morning. This is not as illogical as it might seem—there are a number of non-college storm drains in the general vicinity of the rink that are tied into the sanitary sewer. In fact, this has created considerable pressure on the capacity of the local water treatment plant. However, in compliance with plumbing codes, the storm drains outside the rink itself had been segregated from the sanitary sewer. For about three hours on Friday morning, long enough to complete the project, a mixture of water and ammonia was flushed down the outside drain.

Friday afternoon the Massachusetts Department of Fisheries and Wildlife received a call that there were a number of dead fish in the Green River, a stream that runs several hundred yards from the rink. A DFW agent came to the river, and at first presumed that the killing agent was chlorine from a pool (a hockey rink is probably not the first source of pollution to come to mind in August). This did not cause any serious delay

Every institution should be sure that its personnel are familiar with both the practical safety measures and the regulatory requirements for materials on campus.

in analyzing the situation. Williams College was an obvious source of pollution of any kind. As a relatively small college, no matter what the environmental problem, the same personnel would be, and were, contacted to work with the DFW.

On Saturday morning an agent of the Massachusetts Department of Environmental Protection arrived, and in cooperation with both town and College personnel began to look for the source of the fishkill. A dye test quickly established that the drain used emptied directly into the river. Releases of ammonia to the environment in excess of 100 pounds (the "reportable quantity" for this substance) must be reported to EPA. Based on the amounts of ammonia present initially and the relative length of time that the ammonia-water mixture was flowing into the river, the DEP determined that the amount of ammonia that had probably been released was well below the reportable quantity. However, the 100-pound level is designed, of course, with respect to human health and safety. The extent of the fishkill was magnified both because fish are very sensitive to their environment and because water levels in the stream were very low and there was essentially no dilution of the ammonia-water mixture. In contrast, the water treatment plant was unable to detect any of the material sent down the inside drain, because of dilution from other sources before reaching the plant.

Follow-up

Had the release of ammonia exceeded the reportable quantity, the burden of reporting it would have been on Williams College. There are very substantial penalties for failing to report releases, whether accidental or planned. The single notification path that is always legally correct is through the National Response Center of the Emergency Notification System, whose emergency reporting number is 800-424-8802. The National Response Center will follow up with notification to the EPA regional office and other responsible agencies. An alternative, but also appropriate, notification path is to begin with the local emergency planning committee (in our case, the fire department) and then contact the state emergency response commission through the Department of Environmental Protection (DEP). The DEP would normally then transmit this information to the EPA, and through the EPA to the National Response Center. The National Response

Center must always receive a report because it collects hazardous spill information nationally, and compiles it into reports that can be used by those wishing to design spill response plans. Additionally, had the release been to a navigable waterway it would have to have been reported directly to the appropriate EPA office.

Regardless of the quantity released, any environmental damage must be reported to the DEP. Repair of the damage is clearly the responsibility of the entity that allowed the disposal of the polluting material.

Williams College worked with the DEP to determine the appropriate measures. The DEP's first request was that we cease discharging the ammonia to the stream; a request that was moot but required a formal response by the college. The college was further required to arrange for testing the stream to see

that the water conditions had returned to normal, and to replace the dead fish. Finally, the college surveyed all storm drains on its property and marked with blue paint those that drain to sources other than the sanitary sewer. The DEP praised the level of cooperation they had received by the college, both in the initial stages of the investigation and in the follow-up period.

What Can Be Learned?

There are two lessons that can be learned from any such incident. The first is specific—how do we ensure that this particular accident will not occur again? We have seen that ammonia is a potentially very hazardous substance. Because it is so widely disturbed in commercial and industrial life, its dangers may not be appreciated. When properly contained and handled, there is no risk to the community. However, even a momentary lapse in attention can have major consequences. Users of ammonia-based cooling equipment should be sure that they are complying with the SARA Title III reporting requirements, and with any other requests by their local emergency planning committees.

Our specific response in this case is to arrange that any future repairs to the ammonia system will be done by the outside contractor who does the annual inspection and maintenance of the system. We believe they are more able to empty the system efficiently, thus avoiding the build-up of fumes that triggered the incident. Ideally this should prevent any uncontrolled release of a hazardous material to the environment.

The second lesson is more general—what similar types of accidents can we prevent by learning from this one? Without question, every institution, whatever its size and purpose, should be sure that its personnel are familiar with both the practical safety measures and the regulatory requirements for materials on campus. For instance, maintenance workers knew that they had to get permission from the water treatment facility before disposing of an unusual substance. Security personnel knew that the presence of an unusual

odor indicated a problem that deserved an immediate response. And the response was a considered one; there was no intent to discharge to the river. In retrospect, it turned out that there was someone on campus who knew the outfall of that particular drain. But there was no mechanism for transmitting that information to people who might only need it once in ten years. This type of failure in communication is one of the hardest problems to eradicate. We believe, however, that wide discussion of what happened is one of the best ways to avoid repetition.

Finally, we learned for ourselves that full cooperations with the authorities is not only legally correct, it results in reductions in potential penalties. And, perhaps most importantly, it builds a good relationship in case of any future problems.

Conclusions

Naturally, no institution wants to encounter a problem that creates both a financial and a public relations cost (all the local papers ran major stories about this incident). However, as a learning tool it was very useful. There is no permanent damage to the environment, and the financial penalties were small in reflection of the help that the college provided both in finding the source of the problem and in cleaning it up. It was a useful wakeup call to anyone who said "It can't happen here!" Now our responsibility is to show that we can prevent any similar event from happening in the future. ■

More information on SARA Title III and other environmental regulations can be obtained from the EPA. Contact your regional office, or the following office:

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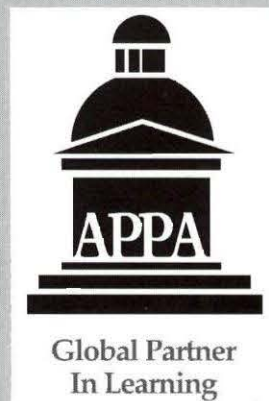
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Notes on Mounting a Wild Goose Chase

by Harry S. Bingham

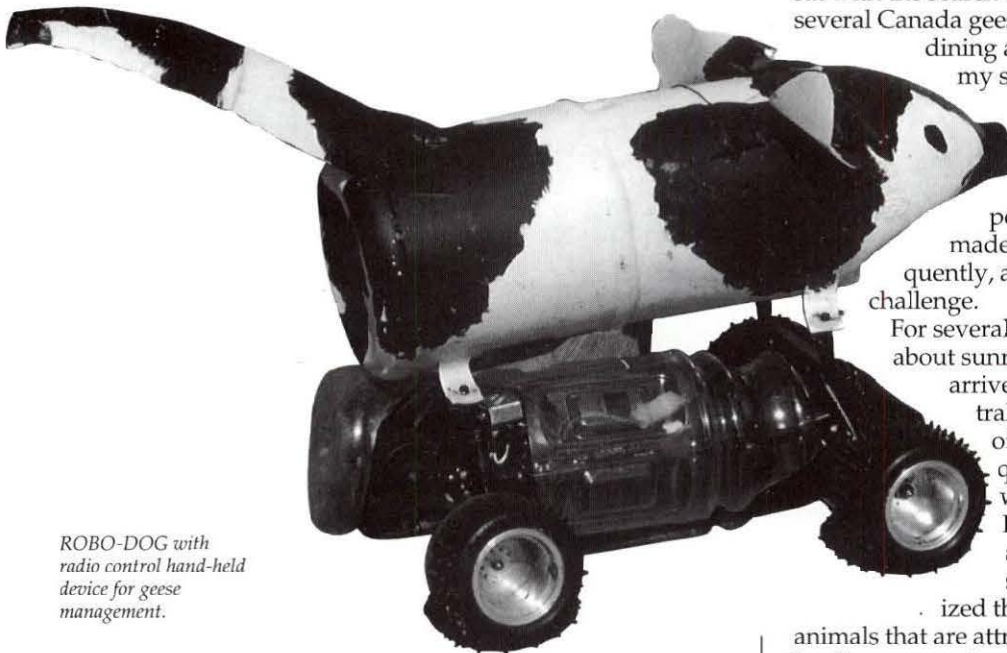
The popular press and even some political and social commentaries have been sued to describe the plight of our citizenry due to the change in the life style of Canada geese. The *Branta Canadensis* have now learned that they don't have to fly another 1000 miles or so south to forage for their winter's keep, or for that matter, head back north in the summer. They have found a wonderful new homeland amidst the lush lawns provided by institutional and corporate cam-

puses, golf courses, park lands, and farmlands where they can be extremely comfortable all year long. The result, of course, is that we humans have found it difficult to coexist amidst the fouled trail that Canada geese leave behind. Many accumulations of droppings that these otherwise handsome animals deposit on lawns, pathways, recreational areas, etc.

About eight years ago I was interviewing for a position in facilities management at a New Jersey University, and as I sat with the search committee in the student center I noticed several Canada geese walking across the patio adjacent to the dining area. A member of the committee noticed my surprised and said to me, "If you can solve our geese problem, you can have the job right now!" I knew I had solved some unusual problems related to buildings and grounds in my previous positions, but this was a new one for me. I made no commitment at that time, but subsequently, after obtaining the position, I accepted the challenge.

For several mornings in a row I went to the campus about sunrise and watched the morning flights arrive and land on the small lake that was central to the abundant green space at the heart of the university. The birds would very quickly move to the edge of the lake and waddle upland and commence feeding. If I approached them they would dawdle along as they made their way slowly but surely to the lake. For the first time I realized that Canada geese are essentially grazing

animals that are attracted by the open water as a preferred landing area and a place for refuge. Additionally, it was obvious that they didn't consider human being a Huge threat. In contrast I soon learned how threatening their presence was to the well being of a campus setting. Like many aggrieved land owners I adopted the philosophy that we are entitled to the use of our land as much as they are, and I became determined to compete vigorously for it within the law.



ROBO-DOG with radio control hand-held device for geese management.

Harry Bingham is a member emeritus of APFA, having served four institutions of higher education in a variety of teaching and administrative roles for thirty-five years; he retired from Rider University in 1992. Bingham currently serves as a consulting engineer in facilities management, and is based in Yardley, Pennsylvania.

It was a logical deduction once deprived of their grazing rights the geese would seek other green pastures. Several ideas came readily to mind, but I knew I surely wasn't the first one to have confronted this problem, so I contacted the state and federal agencies having jurisdiction over our wild and sometimes pesky animal cohabitants. My most helpful source was the Department of Agriculture's Animal Control Division. They sent me a set of regulations prescribing the do's and don'ts of coexistence along with a list of techniques others have tried to rid their properties of the unwanted creatures. Many courses of action such as the use of fire crackers, balloons and even a low fence around the lake seem impractical for our situation. Instead we instituted a program of passive harassment.

When a large number of geese would be sighted in the lake area three to five grounds keepers would converge on the area and approach the geese on foot to urge them back into the water. This was only a partial fix, since the geese don't immediately up and leave. Therefore, to hasten the exodus, we tried using float lines consisting of empty white bleach bottles spaced along study rope and strung across the lake. When the lines were untied on both shorelines and walked up and down by the grounds people, the geese would become agitated and leave. This can be labor intensive, but the institution did apply this technique and with reasonable success for a couple of years.

I was looking for a more cost effective solution to this continuing problem when I heard that two of the corporate campuses in our area were using border collies to herd the geese in their ponds. I talked to the firm that leases the border collies and learned that their dogs had been specially trained to handle ducks and geese, but came from the same breed that has been herding sheep for hundreds of years. Two demonstrations were held on campus by the breeders and trainers of these wonderfully intelligent dogs. The geese quickly headed for the lake upon seeing the dog, so there was little herding involved in the lakeside demonstration. While there was some representation that the dogs could also go into the water to agitate the geese and get them airborne, this aspect was never demonstrated. Consequently, it did appear that at least one person from the grounds' staff serving as the dog handler would have to devote a considerable amount of time waiting around with the dog to police the lake. Of course, other important considerations were the considerable cost of leasing a dog and the possibility that the dog might make an error and injure or kill one of the geese, a very serious matter in the eyes of the jurisdictional agencies and a potential source of poor publicity.

The university seriously considered leasing one of the dogs on a trial basis, but by the time the decision was made the geese had started their summer molting season in 1994.



During June and July there were over 100 geese on campus that were virtually incapable of flying because they were shedding many of their old feathers. Since this was not a good time to harass the geese, it gave time for reflection on the problem at hand. There was a strong suspicion on my part that the herding instinct of the border collies had very little to do with getting the geese into the lake. In the eyes of the geese the dog's size and shape translates into predator, and they would be off to the lake as their place of refuge as soon as their acute vision detected the dog. To test this theory, I asked my brother, a graphic arts person, to work with me on creating a mechanical dog. We hoped to find a radio controlled toy amphibious vehicle, but settled for a toy truck chassis (approximately 12 inches by 14 inches in plan view). We mounted on it the facsimile of a border collie-sized dog quickly fashioned out of coat hanger wire, brown paper bags, and tape.

The predator-appearing creation was immediately feared by the geese and sent them scurrying for the lake. Since this mechanical dog did not have amphibious capabilities as we had first hoped, it seemed important to introduce an additional piece of technology. At this point, a colleague volunteered to bring in his son's radio controlled boat. We found that when this 30" long by 10" wide, low-to-the-water vessel is cruising around the lake, any geese present go ashore. Once they encounter the mechanical dog, they take to the air and leave the campus. If the boat is placed in the water before the fog is sent toward any geese on land, the geese take to the air and avoid settling in the pond. It is a pretty sight to see a flock of geese on the wing at any time, but particularly when they're heading away from campus!

A second generation of dog was fashioned in place of the paper dog. The newer version was made from three one-gallon bleach bottles and was painted to make it look somewhat dog-like. Some observers say it looks like a pig crossed with a skunk, but the bottom line is that for geese, whose eye balls weigh more than its brain, it spells predator. The dog was respectfully termed Robo-Dog and the boat as Robo-Boat. They were used approximately twice a day for the first month or two and then by accident it was determined that a golf cart with a strobe light on top was an effective geese chaser. It also had the capability of being pressed in service more quickly than Robo-Dog to chase the geese into the lake. The geese never allow the cart to get close enough for it to be threatening to life or wing, so it too has become an effective passive harassment tool. Robo-Dog has been retired for the moment, but Robo-Boat is still an important part of the program.

Research will continue on the use of strobe lights as a possible deterrent to landing for the Canada geese, and extreme vigilance will be the key in getting the geese off the property before the molt season arrives next summer.

In this day and age, it is not too surprising to find high-tech solutions for just about everything, including geese management. ■

Software Solutions

Howard Millman

Do-It-Yourself Web Site

Use the Internet to improve communication with your customers

One gripe I often hear takes the form of "most of the time when anyone thinks about us it's because something is broken." And every time I hear that said, I think "now there's a facilities management organization that would likely benefit from improved communication with its customers."

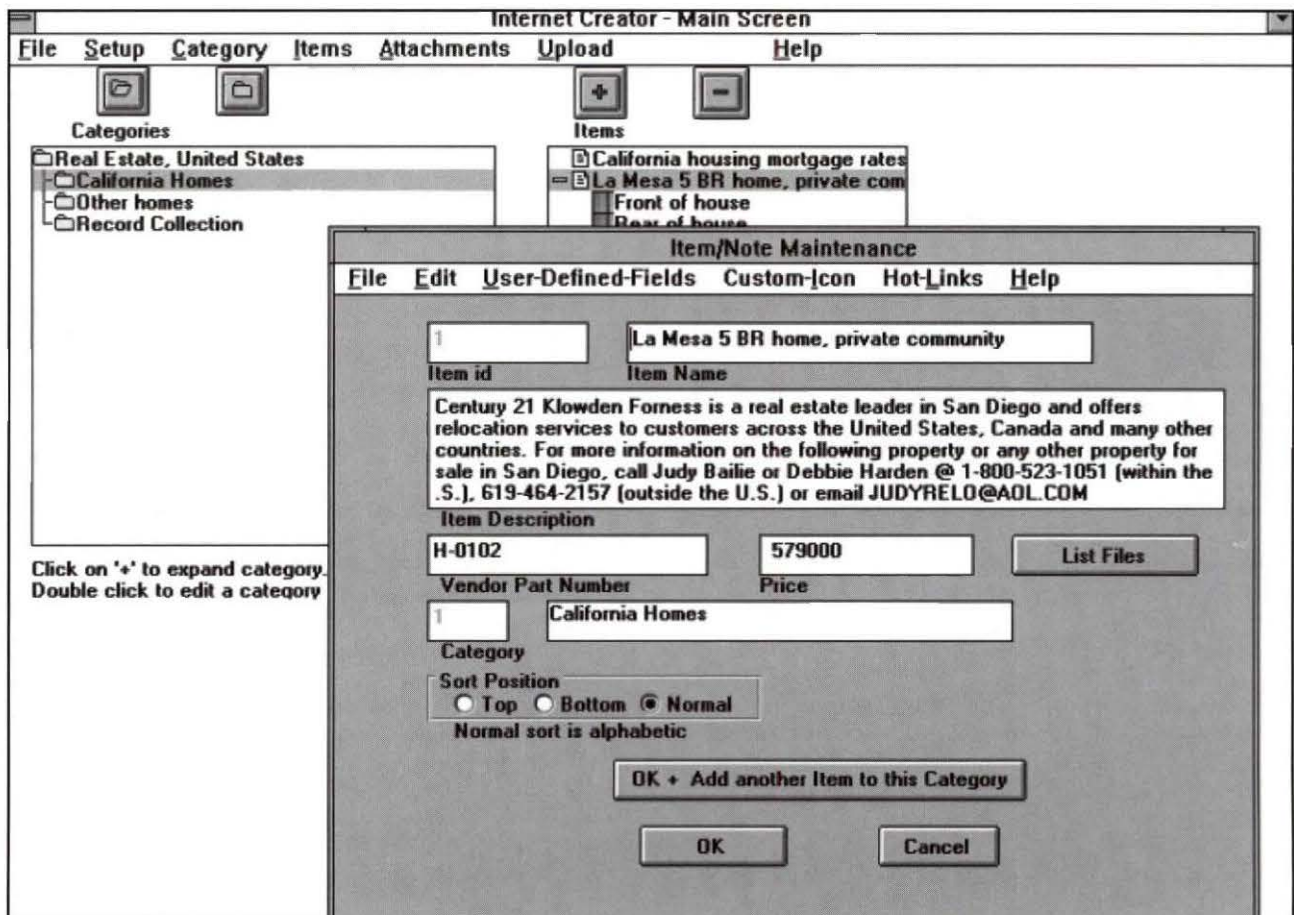
In past columns I have suggested ways to improve communication inside and outside of the facilities department using computers. For example, the sharing of information between shops to minimize territoriality and the vitiating the us-against-them mindset. Another idea urged granting selected customers direct, password controlled access to a CMMS from conveniently located campus terminals.

One drawback to the successful implementation of this latter strategy is that it required you to give non-facilities people direct links or dial-in access to your network. And who knows what

evil lurks in the heart of some staffers.

Here's another idea to improve communication: capitalize on the skyrocketing popularity of the Internet. Do it by creating your own home page. With the widespread access to the Internet's World Wide Web seemingly indigenous to universities, you could post easily accessible notices about shutdowns and events, plus simultaneously indulge in some subtle self promotion.

At one time, building home pages required a knowledge of the Hypertext Markup Language (HTML). This ornery document formatting technology enables readers to click on a "hot spot" and jump to a related topic. Fortunately, products are appearing that greatly simplify building home pages and eliminate the need to learn HTML. One product, aptly named Internet Creator, is a low cost Windows 3.1-based Web page designer. Available from Brooklyn, New York-based Forman Interactive, the software costs \$250.



According to Peter Forman, president of the company, "Internet Creator simplifies creating attractive and informative home pages without investing a lot of time or money."

The key to Internet Creator's simplicity is its use of predefined forms. Using the forms' fill-in-the-blanks technique, even a novice can create a multipage, hypertext linked Web site with no prior Internet document design experience.

Building a World Wide Web page is similar to creating a document containing a rich mix of graphics, mixed fonts, and text. During the design phase, the software relies on a hierarchical tree, much like Windows' File Manager. The multilayered levels indicate how the pages link to one another.

In addition to the predefined fields, Internet Creator offers user-defined fields that contain free form text. The software also supports embedded audio and video segments for users

who have the appropriate hardware.

After you design the pages, what next? How do you get them on the Internet so your customers can learn more about your services? In addition to the software, Forman Interactive also offer a service to people who do not have their own Internet server. Forman will rent you space on their World Wide Web server at a penny-pinching price of \$50 per month. The \$250 cost of the software includes three free months of server space rental. In addition, there are dozens of other commercial Internet providers located throughout the world.

Many schools already have a Web home page site to which you can add your documents. The school will decide how they will incorporate your information; you just need to turn it over to them in a form they can use. Web pages created with Internet Creator adhere to HTML standards and consequently

mount on all standard Unix servers.

One side benefit from posting your information on the Net is intangible. It's the subliminal message that says you will meet with and communicate with your customers anytime and anywhere, even in cyberspace. ■

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Howard Millman, a systems integrator, helps universities and hospitals implement facility automation systems. His firm, Data System Services, is based in Croton, New York. Millman can be reached at hmillman@mcimail.com.



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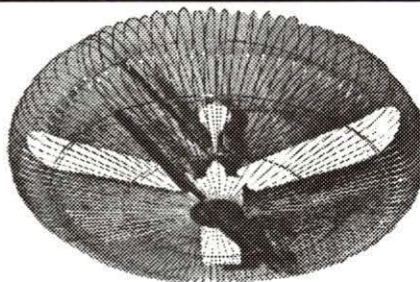
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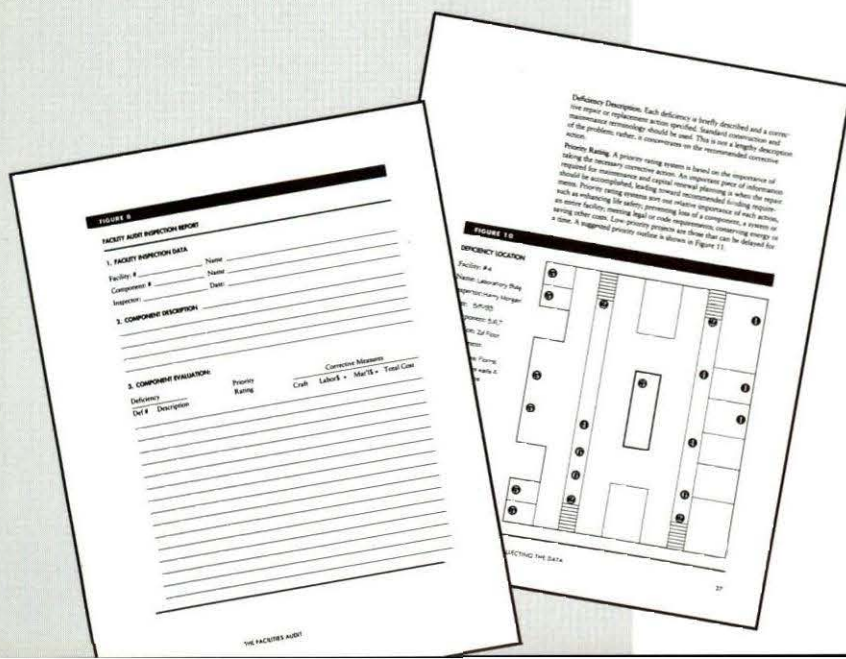
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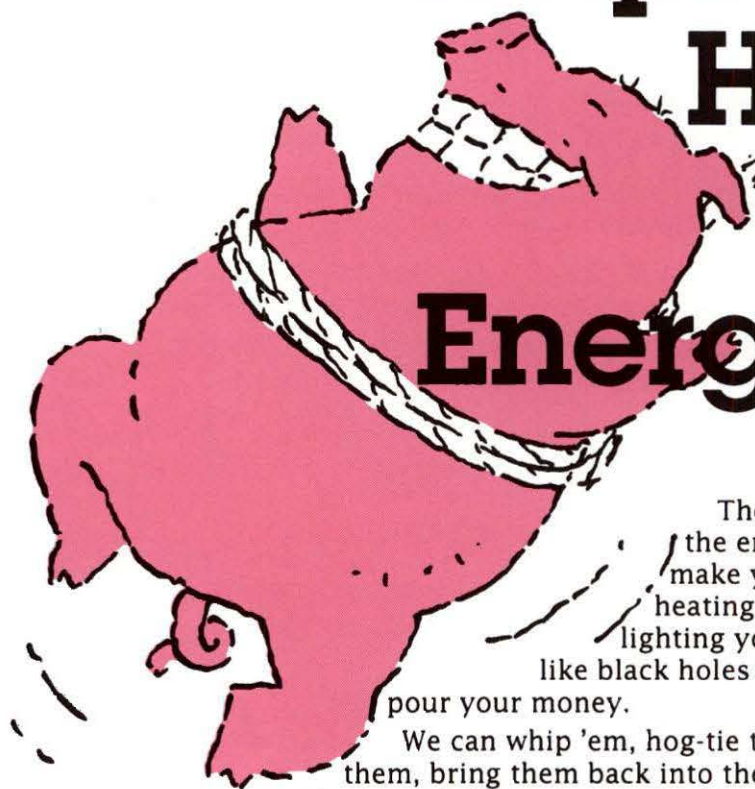
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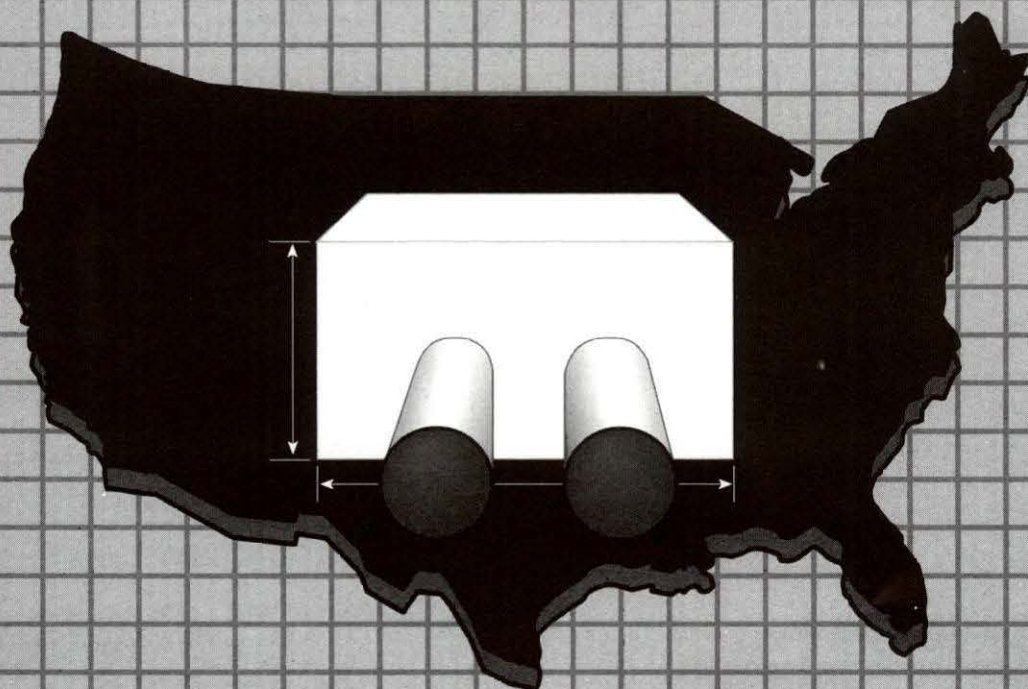
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