Willamette Week

PORTLAND'S NEWSWEEKLY VOL. 9, NO. 50, OCTOBER 11, 1983 50¢

# Kids Say the Darndest Things

*Here's what three students think about the proposed school reforms.*

*BY KRISTI TURNQUIST*

EVER SINCE the National Commission on Excellence in Education released its report, "A Nation at Risk," in April, the state of America's schools has been one of the hottest topics around. But amid the increasingly politicized discussion, some voices have been missing — namely, the voices of those most directly affected by education — the students.

With that in mind, we sat down with three Jefferson High School students last week to hear their thoughts on education. We met in social studies Instructor Bill Bigelow's classroom. It was a fitting location, since all three had taken classes from Bigelow and often cited him as the kind of dedicated, creative teacher that, perhaps more than anything else, can make education an exciting experience for students.

Andrew Rohn, 17, is described by Bigelow as "one of the brightest students I've ever had." Unusually articulate, he is often sharply critical of school and is not shy about expressing his opinion. He is the kind of earnest, idealistic student who is likely to speak up to challenge his teachers if he finds inconsistencies or faults in a text. He's also interested in the arts, specifically in writing music.

Angela Braxton, 17, is a dedicated self-improver, well-adjusted, and working hard to get the most out of school. Her conversation is peppered with references to those who settle

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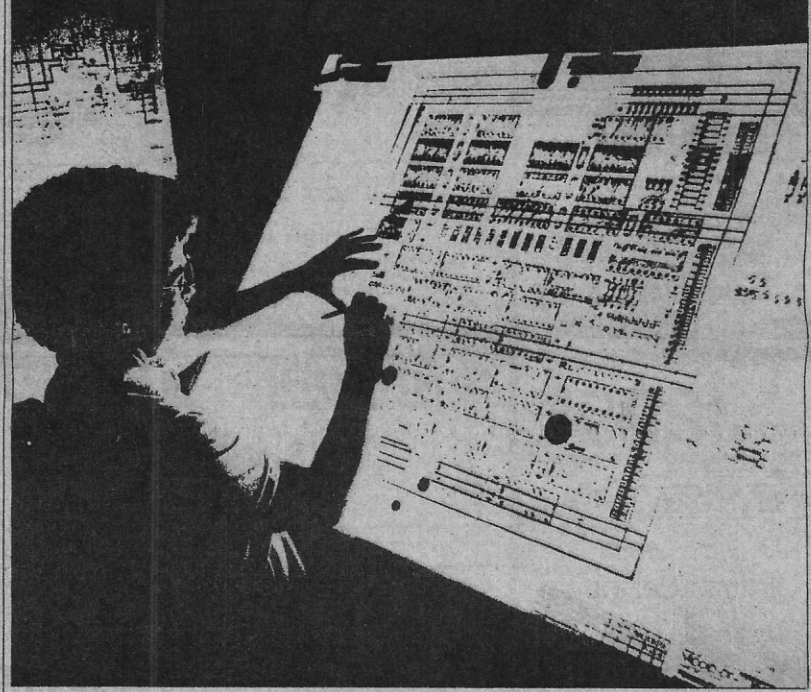
DETAIL FROM SECOND PRIZE PORTRAIT BY ZELAYA

# THE WORLD ACCORDING TO TEKTRONIX



CATHY CRESSY

*A blend of entrepreneurial spirit, ingenuity and a unique corporate culture are responsible for Tek's success.*

*EDITOR'S NOTE:*

*With this issue* Willamette Week *begins a two-part series on Tektronix, the giant Beaverton electronics firm. While everyone in the metropolitan area knows of Tektronix, few here are aware of just what the firm manufactures, and even fewer have considered the company's enormous impact on the region in the areas of labor relations and support for education, as well as the creation of an environment in which other high-tech firms have thrived.*

*In this first part, Business Editor G. Pascal Zachary looks at the formation of the company and the values of its founders — which in many ways represented a departure from that of most Oregon firms but were in keeping with an evolution occurring within the high-tech industry.*

*BY G. PASCAL ZACHARY*

IT WAS ONE of those typical Tektronix decisions — off-the-cuff, yet uncanny in its accuracy. The year was 1950, and Tek, then a 4-year-old firm that specialized in the manufacture of oscilloscopes, was outgrowing its small shop on Hawthorne Boulevard in Southeast Portland. To company founders Howard Vollum and Jack Murdock, it was clear the firm needed to move. But where? To find the answer, the two men did something that was to become a hallmark of their style: they turned to their employees and asked them to vote on a new site.

The story of how Tek, the state's single largest employer, made its decision to move to Washington County, where it occupies a couple of sprawling high-tech campuses, is a telling indicator of what the company would become. As a pioneer in the then dimly understood world of high technology, Tek was destined to emerge as the world's unchallenged leader in its field, employing 15,000 people in the four-county metropolitan area and paying roughly $500 million in local wages and bonuses annually.

From the start, Tek was different. Different

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# THE WORLD ACCORDING TO TEKTRONIX

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not only in the way it treated its employees and developed its products, but different in its attitudes toward the local community and the political process. As a business it seemed almost to operate in opposition to Oregon's traditional economic heavyweights: lumber, machinery, utilities, and agriculture. Tek's products were not something to be extracted from the land or punched out by an assembly line; its real resources were the engineers and technicians who produced and designed its complex and specialized instruments. Moreover, as a corporation, it saw its role differently from that of traditional business powerhouses. A collection of individuals, the company was content to leave politics to its employees.

As real as the differences between Tek and established industries were, however, there was a similarity between them. As in other industries, it was character that made a company — and, more often than not, the character of a company's founders. In Vollum and Murdock, Tek possessed leaders with a force and vision equal to that of any who had preceded them in the State of Oregon. To understand how Tek has achieved a singular influence in the state, it is necessary to look no further than these two men.

> *After leaving high school and establishing a business of my own, I intend to go further into the study of radio phenomena . . . . I shall probably make some inventions, which if put to use would be of great benefit to the people of the world . . . .*
>
> — Jack Murdock's teenage diary

"In the Depression," recalls a mutual friend of Murdock and Vollum, "electronics was seen as black magic. Not very many people understood or had any awareness of its broad uses."

The forbidding face of radio — as electronics was euphemistically dubbed — did not deter either Murdock or Vollum from exploring it. A graduate of Portland's Franklin High in the mid-1930s, Murdock was given a choice by his father: he could attend college or receive a stake to start a business. Murdock chose the latter and opened a radio-and-appliance store on Southeast Foster Road.

As someone who could tinker with radios but wasn't a whiz at fixing them, Murdock, an only son, realized he needed a repairman and soon hired Vollum, who had come into his store looking for work. A recent graduate of Reed College with a degree in physics, Vollum had mastered the mysteries of radio. As a teen-ager, a boyhood friend remembers, Vollum delighted the teachers at his former grammar school in Sellwood by stringing up a loudspeaker system for their use. Then, as a college undergraduate, he built an oscilloscope in his parents' basement. This measuring instrument, which

**Jack Murdock and Howard Vollum**

graphs the size and speed of electrical impulses on a TV tube, became increasingly important as more and more products relied on electrical circuitry. By the mid-1960s, the uses for Tek's oscilloscopes included measuring the heartbeat of an egg embryo, testing circuit boards and searching for impurities in steel.

Not long after meeting, the two men began to consider forming a business around Vollum's oscilloscope. But war forced them to postpone their plans. Vollum was drafted into the Army and spent four years in the Signal Corps, researching the uses of radar in labs in New Jersey and Great Britain. As he noted in a rare interview with the Oregon Historical Society in 1980, he learned a great deal about designing oscilloscopes while in the service. "So I had an opportunity to work in an area of radar which was very important and very difficult," he told Linda Brody, the interviewer. "Of course, test equipment for this sort of thing was not readily available and we had to make our own in most cases. The part of the radar set that I was concerned with was the indicator section . . . the thing that the operators look at. That's really a specialized form of oscilloscope and so the techniques that I learned, and the technology that was developed, was directly applicable to me and oscilloscope design which, of course, was my interest."

Murdock, meanwhile, had joined the U.S. Coast Guard, and for most of his tour he was stationed in Portland. He corresponded regularly with Vollum and began planning their future business. According to James Castles, one of several men Murdock met in the Coast Guard who was later to work for Tek, Murdock "would talk quite a bit about the firm he intended to start, and when asked about whether he could handle the technical side he would say, 'Wait until you've met Howard.' "

Castles notes that Murdock and Vollum shared a "shrewd recognition that they made a fine team," and that Murdock was in no way overstating Vollum's value. By the war's end, Vollum was perhaps the leading oscilloscope designer in the industrialized world; Tek's initial oscilloscopes, which he both designed and manufactured, were greatly superior to instruments made by Dumont and RCA, the two leading American firms in the business. "The older companies didn't know what hit them," says Jean DeLord, Tek's research director in the late 1950s and now chairman of the physics department at Reed College. "Their engineers were old, and they couldn't see beyond their outmoded designs."

Murdock was not alone in recognizing Vollum as an important electronics innovator. By chance, Bill Hewlett, who had founded Hewlett-Packard with David Packard in a California garage in 1938, met Vollum while he was in the Army. The Portlander made such a favorable impression on Hewlett, who was the engineering genius behind what was to become one of the nation's most successful pioneer high-tech firms, that he advised his partner, Packard, to hire Vollum. However, Packard declined.

Not that Vollum would have jumped at the offer, anyway. He was so anxious to start work on his own business, that Tektronix was founded a mere half dozen weeks after his discharge from the service in November 1945.

Despite Vollum's innovative oscilloscope design and the burgeoning postwar demand for the instrument, Tektronix (the phonetic spelling of the words "technical" and "electronics" abbreviated together) had some rough going in its early years. The company's first oscilloscope, which probably used a cathode-ray tube built by RCA, was released in 1947, but didn't begin to make a profit until 1948. By 1950, however, sales had topped $1 million and the close-knit staff included more than 100 people. The opening of sales offices throughout the United States in 1951 helped quicken sales, which quadrupled that year. Meanwhile, the government itself began its long history as a Tek customer, purchasing a number of oscilloscopes to aid in measuring atomic and hydrogen bomb blasts.

A haven for engineers, Tek, recalls one researcher, was "better than being at a university" during the 1950s, and the company yielded a string of significant improvements in its oscilloscopes, as well as developing a cathode-ray tube (a basic element in both televisions and computers) for internal use. By 1964, Tek had nearly 5,000 employees, annual revenues of about $75 million, a burgeoning campus in Beaverton, and an extensive sales network through the United States and Europe. An initial public stock offering that year, besides increasing public awareness of the firm, made rich men out of Murdock and Vollum (who then held 52 per cent of the outstanding stock) and provided a windfall of several million dollars for a group of 30 veteran employees.

*Howard was our guru.*

— Jean DeLord

In Tek's formative years during the 1950s, engineers were king, and founder Howard Vollum — the taciturn engineer who had the final say over all designs, product development and advertising — was nothing short of a corporate hero. Brainy and poker-faced, Vollum was a tall man with rustic good looks who was often shy and nervous in public (he studiously avoids giving newspaper interviews, including with *Willamette Week*). Quick with a wry joke, he was reluctant to criticize wayward employees: he found it difficult to flatly tell a person what was on his mind. "I suspect a lot of people misread Howard many times," says William B. Webber, who served as Tek's vice-president for administration before retiring in the 1970s.

Whatever his failings as a manager, Vollum was personally warm. Generous with his time, he was easy to approach and quick to strike up a technical conversation. He had few airs. Though he was respectful of education, he wouldn't hesitate to give an engineering spot to someone without a college degree. "Paper credentials didn't mean much to him," Webber says.

Vollum was the classic enngineer who had seen an entire firm spring up around his major innovation (even today nearly half of Tek's revenues come from oscilloscope sales), and it was inevitable that, among Tek employees at least, his exploits would assume larger-than-life proportions. His intellect, for example, went almost unchallenged at Tek, and legends sprang up around it. One veteran Tek employee recalls how he came to learn the risks of second-guessing a decision by Vollum. The employee had just finished preparing an ad for a new instrument and had brought it to Vollum for his approval. Vollum, who was always nitpicking over the ads, took a quick look, did some fast calculations and then pronounced that the specifications for the instrument (displayed prominently in the ad) were wrong. The ad writer insisted that couldn't be so, explaining that he had copied the specs right off the product. Vollum was unmoved. "Later I went back to the people who built the product and, sure enough, they had put the wrong specs on the product," the employee recalls. "It was the last time I ever disagreed with Howard over an ad."

Then there was Vollum's intense pride, illustrated in an apocryphal tale that provides neat evidence for Tek's long-standing slogan: "committed to excellence." Before forming Tek, while working as a repairman

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for Murdock's store, Vollum had repaired a woman's vacuum cleaner. Some years later, so this oft-repeated story goes, Vollum, who was by then well on his way to amassing more than $250 million in personal assets, received a phone call from the woman. She informed him that her vacuum had once again gone on the blink and asked if he would come fix it. Vollum agreed, got into his car, and before long the job was done. "When I fix something, it stays fixed," Vollum reportedly told the woman after declining an offer of payment.

Besides illustrating his wry sense of humor, the tale shows Vollum's drive for perfection, which had much to do with Tek's success as a supplier of fine instruments but also led to some odd in-house projects and a resistance to jumping into the nascent field of computers. For years, Tek prided itself on producing nearly everything internally, including the boxes in which it shipped its instruments; it has only been recently that Tek has regularly sold components for other companies' products. More seriously, while Vollum led Tek into a range of new areas, including the production of specialized television instruments, circuit boards, and computer-display terminals, the company, inexplicably, never made a move to sell business or personal computers — despite its huge engineering capabilities. "Strategically, that was a major failing," believes Tom Bruggere, a former Tek executive who left the firm in 1981 to found Mentor Graphic in Beaverton. "It was one of several factors that have kept them from growing much larger."

> *Jack, incidentally, probably had more than anyone else to do with many of our characteristics that we have around here. He was always very friendly, very open . . . We've always been on a first-name basis and we've downplayed titles and positions and so on; all that was part of Jack's sense of ethics and good business practices. That was important to us. It started setting a tone that has continued all this time.*
>
> — Howard Vollum, in an interview in 1980 with the Oregon Historical Society

Compared with Vollum, Jack Murdock was more urbane and businesslike and less the subject of myth. He is credited with instigating some of Tek's farsighted labor practices, including the company's profit-sharing plan, whereby the workers' slice equals that of the shareholders. He is perhaps best remembered for leading company hikes and organizing the all-staff annual picnics at a time when Tek was still small enough for him to know everyone personally. A wonderful conversationalist, Murdock was the ideal foil for Vollum. "We'd call him The Chaplain," recalls James Castles, a close friend of Murdock and Tek's corporate counsel for almost 20 years. "No matter who he'd talk to, that person went away thinking Jack agreed with everything they'd said."

If Vollum provided Tek with a company hero — a living model of how a Tek employee should behave — Murdock took it upon himself to forge and manipulate the symbols and rituals that have come to permeate the Tek workplace. Deeply attracted to psychiatry and the puzzle of human motivation, Murdock, an only child who never married, was a good match for the challenge of building a company from scratch. An avid follower of Karl Menninger, the American psychiatrist who ran a research institute in Topeka, Kan., Murdock's interest in worker self-management predated its current popularity and contrasted sharply with the typical concerns of most corporate managers in the 1950s, who mainly relied on their vested authority to prompt workers to perform a narrow range of duties. In the still uncertain world of High Tech, Murdock, who wrote as a teen-ager that "the majority of people have no idea what radio's future holds in store," knew that such a management style wouldn't take.

Rather than setting up elaborate organizational charts and byzantine job descriptions, he needed a system that encouraged both communication and innovation — one that assumed that individuals were not seeking to avoid work but to reach for their full potential.

Murdock's faith, which Vollum shared but didn't articulate nearly so well, was expressed in a number of ways at Tektronix. Engineers jokingly boasted that they had received a "Tek degree" or called one another "Tek products." The work atmosphere was loose: hours were flexible, everyone called one another by his or her first name, and Tek equipment was available for use during an enterprising staff person's off-hours. Most visibly, no one had a private office — not even top management.

Murdock's symbols were taken seriously. They were nurtured and protected; alterations occurred only grudgingly. Tek's surrendering of a particular cherished symbol illustrates this well. For many years, Tek ran its own company cafeterias, and as a sign of the trust it placed in its employees it left the money boxes open, so that workers could pay and make change on their own. During the 1950s and '60s the system worked reasonably well, and offered thousands of new Tek employees tangible proof that the firm's management style was more than rhetoric. However, by the 1970s, some workers had begun stealing from the cash box, and management's patience with the symbol began to wear thin. "Tek struggled to keep open those change boxes," recalls Maury Merrick, a full-time Tek engineer from 1959 to 1971 and now chairman of the electrical engineering department at Portland Community College's Cascade campus. "Even though the higher-ups knew Tek was actually losing money on the cafeteria operation due to employee theft, it was a symbol they were reluctant to give up. As one once told me: 'We're willing to lose some money for the privilege of this symbol.' "

Murdock retired from the firm in the early 1960s to pursue his growing outside interests, which included downtown real estate and two airplane companies. He continued to serve as Tek's chairman, but in 1971 he was killed when the seaplane he was piloting crashed. He left no family and few intimate friends. For a man steeped in psychology, he was oddly reluctant to get close to others. "He was always fearful someone would take advantage of him," says Castles. "He had a complex about that."

With no real heirs, Murdock had instructed that his estate, valued at more than $50 million, go towards the creation of a charitable foundation. Now worth more than $140 million, the M.J. Murdock Charitable Trust has dispensed $53 million in its eight years of operation.

> *We didn't have the inclination to bully people around just because we think we're right.*
>
> — Earl Wantland, Chief Executive Officer and President, Tektronix

It is hard to imagine Earl Wantland, a tall man with a folksy manner that calls to mind the actor Andy Griffith, trying to stampede Gov. Victor Atiyeh and the Oregon Legislature into giving Tek something it wants.

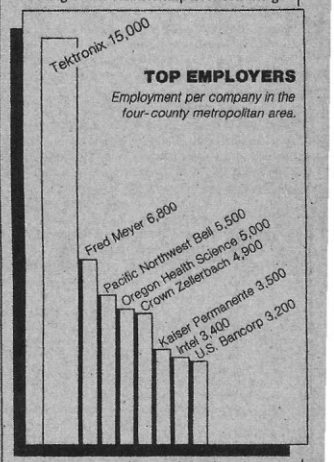
Not that other corporate chiefs haven't used tough talk to gain what is euphemistically called "an improved business climate." About a year ago, Hyster delivered just such a threat — and followed through on it when the state proved unwilling to offer it financial aid. More recently, Douglas Strain, chairman of Electro Scientific Industries, a high-tech firm founded here in the early 1950s, commented in a discussion about a proposed sales tax that his firm would be forced to shift some of its operations out of state unless the tax obligations on Oregon's businesses were eased.

Wantland, however, is far from the typical corporate executive. Though he earns $258,000 a year, he drives a Honda Civic station wagon to work and is listed in Tek's 120-page internal phone book not as president and chief executive officer but as "general staff" ("I'm just a worker bee," he quips when asked about this). In line with Tek tradition, he does without a private office, pondering the future of the firm from a desk partially hidden behind a plain set of office floor partitions.

Vollum's handpicked successor, chosen after Vollum had soured on two previous potential heirs to the Tek throne, Wantland is the sort of down-home Oregon boy with whom Tek's founder can relax. (At 70, Vollum is still chairman of the board, and though he is no longer active in the day-to-day running of Tek, he keeps a desk in the firm's research-and-development center and a hand in engineering projects.) A high-school graduate who dropped out of the then-Portland State College in the mid-'50s to join Tek at the age of 23, Wantland, who began as a technician, says he has always been attracted to the company's unpretentious style. As to his position on corporate grandstanding, he need look no further than to Tek's founders. "I don't think they ever thought in those terms," he says with certainty.

Wantland's right. Though Vollum has decidedly liberal social attitudes, he has kept his voice and his money out of politics. This was less true of Murdock, who was a get-government-off-our-back conservative; he and his charitable trust have had links with national conservative organizations — Murdock was, for example, active in the stridently conservative National Association of Manufacturers — but have shown much less interest in local politics. As a company, Tek never put political influence high on its corporate agenda. When lobbying needed to be done, Vollum called on Webber, Tek's unofficial historian and Murdock's right-hand man for some years, to speak out in public; Webber is the only Tek executive to have served as president of the Portland Chamber of Commerce. Vollum, meanwhile, stayed away from the limelight almost obsessively.

Some suggest that Tek's anxiety about politics stems from a real concern of its leaders that the company not get snagged in what some observers call the "Boeing trap," referring to the relationship between the gi-




gantic aerospace firm and the Seattle area. "Tek has been very conscious of Boeing's relationship to Seattle for years," notes C. Norman Winningstad, president and chief executive officer of Floating Point Systems and a former Tek manager. "Boeing has been kicked about up there for throwing around its weight. Tek wanted to be careful that the same thing didn't happen to them.

Boeing has long been Seattle's Dr. Faustus, presenting the port city with something akin to a pact with the devil. For some time, for instance, Seattle officials have tried to annex the unincorporated area on which some of Boeing's plant sits in order to wring a fair share of taxes from it; the firm has successfully resisted these efforts. The company also helped repeal a controversial state inventory tax that struck hard at its own products. As one leading politician in Washington State, who asked not to be named, put it: "Boeing can pull a lot of strings. They can make people see things their way."

Far from pulling strings, Tek's leaders seem uninterested in taking advantage of the firm's size. "Tek never tried to lean on me for any special treatment or attention,"

recalls former Gov. Bob Straub, who spent more than a decade holding statewide office in Salem; "They pretty much stayed out of politics." While in Straub's view this makes Tek "a first-class corporate citizen," Winningstad isn't so sure: he thinks Tek may be doing the state a disservice by not speaking out more forcefully for its own interests. With Oregon starved for leadership, he argues, Tek should be leading, "not abdicating its responsibility to lead."

However, Wantland insists that Tek takes a healthy interest in politics. "We speak out in our own way," he responds, "but we're probably not going to climb on the soapbox very often." Nevertheless, Tek has recently been "more overt [politically] than we've ever been," says Wantland, who spent several years abroad for Tek, setting up its two European plants and supervising the firm's joint venture with Sony. Though neither Wantland nor Tek donates any significant sums to political races, Tek has its own staff lobbyist, who works in Washington, D.C., as well as Salem (Tek makes 40 per cent of its sales overseas and likes to keep abreast of foreign legislation on federal trade). In addition, Tek is by far the largest firm in the 72-member Oregon chapter of the American Electronics Association, which hired its first lobbyist last year in order to push a more coordinated government program. (Besides quickly gutting a bill that would have protected workers from the suspected hazards of video-display terminals, the Tek-led association successfully supported efforts to streamline the state's land-use laws and held the line on proposals to raise the personal income tax.)

Politics may be new terrain for Tek, but education — specifically, college training in engineering — is not, both Vollum and Murdock having strongly supported education since the late 1960s. Murdock's charitable trust is a major donor to a host of regional private colleges. Vollum, meanwhile, is credited with ensuring the survival of both Reed College, his alma mater, and the Oregon Graduate Center. At Reed, Vollum was instrumental in shoring up the college's dwindling endowment; in the early 1970s he offered to donate up to 50,000 shares of Tek stock, provided that other donors matched his offer. "At a very critical time," notes Reed President Paul Bragdon, a Tek director, "Howard provided support that led to a greatly strengthened college." Oregon Graduate Center President Paul Carlson, also a Tek director, tells a similar tale. Though he says Vollum does not want disclosed the size of his contributions to the private facility that is to serve as a hub for research and development in Washington County, Carlson states flatly: "OGC exists today because Howard made a fundamental commitment to us."

Tek and its founders give the bulk of their aid to private schools, but the company helps public education as well. Recently, Tek promised a consortium of public and private universities $3.5 million over a period of years (to be matched by state funds), and succeeded in convincing dozens of smaller but growing electronics concerns to join in the effort. "With all the complaints about the lack of state support for technical education, it was ironic," says Rep. Vera Katz (D-Portland), who sponsored the legislation making the high-tech consortium a reality. "When it came down to it, Tek was the only high-tech firm to lobby in support of the [1982] bill."

*You've probably heard this joke: How many people work at Tektronix? 50 per cent.*
— A gossiper in the Tek grapevine

It isn't so long since Oregon's economy was booming. Even though the timber industry was healthy, it couldn't provide jobs for the burgeoning population, which grew by 25 per cent in the 1970s. Yet by the close of the decade the state's unemployment rate remained well below the national average. The reason was simple: the decade had also seen a stunning increase in Oregon's share of high-tech jobs. Tek itself had grown from a large but still nimble outfit with sales of $150 million and 8,750 workers in 1969 to a bursting-at-the-seams, $1 billion company with 24,000 employees worldwide in 1980.

Since then, however, Tek's fortunes — and the state's — have taken a turn for the worse. Though the book certainly isn't closed on either Tek or the local electronics industry, the past three years have sobered up the industry's biggest fans, and cured folks of the notion that Tek might expand indefinitely. For the giant — perhaps only temporarily — has indeed stopped growing. Sales have been flat for the past two years, and worldwide employment has been cut by nearly 4,000 from its 1981 high. The company mainly blames an international recession for this contraction, but others point to Tek's sluggish pursuit of a few key markets and a bureaucratic-laden organization that has stifled innovation and prompted some of its best and brightest to leave for start-up firms that offer bigger rewards for success.

This is only part of the story, however. As we will detail in a follow-up article, Tek has an alter ego — the many firms it has spawned and those it has attracted to the region. Drawing on some of Tek's central values, these firms are a source of economic vitality for Portland, and a living example for Tek's managers, who are trying to combat the firm's problems by getting back to basics. "The whole idea [of reorganizing Tek into smaller units] is to cast off the bureaucratic tendencies present in a large organization," observes Wantland. "To give us the kind of success through innovation that a small unit seems to breed." •