CHAPTER X

The Very Same Dream * * * * * * 1955–1965

There were many things which changed—staff, curriculum, and campus. There were other things which changed not at all—the work in the classrooms and the strength of the students. In the telescoping of time known as the premature advent of the twenty-fifth century, it was the serious student, in tune with his own times, who largely determined Institute policy.

The traditional bow tie and cap of the freshman became a symbol of the rigorous screening which had given him admission to the school, and his native intellectual curiosity thrived when exposed to the contagion of competition. He found that good marks automatically gave him prestige, that ambition could be reconciled with contribution. What good, he found himself asking now that he had the world in his hands, what good is power without purpose?

A faculty committee had been named in 1956 to study student motivation, scholarship, and morale. Meantime the students had posed a few questions themselves. For instance, “Are Tech students overworked?” they asked the older teachers. “No,” chorused they all, except Hiram Phillips, the chemistry laboratory philosopher, who refused to be cornered: “I’ve been around too long (forty-four years) to still be answering loaded questions.”

The students on Boynton Hill took a long look at the world in which they had grown up and realized that half of the jobs available to them at graduation had not even existed when they were born. The pace of technological change was almost frightening to the parent, the trustee, and to some of the teachers—but not to the brave young man of a contemporary world. The drum he heard was his own pulse. “Give us the basic knowledge,” he virtually said to anyone who would listen, “and we’ll figure out the know-how as we go along.”

“This [1960] was a year of change at Tech,” wrote Craig Rowley, ’61, in a student-contributed article in The Journal, itself a precedent. “The Atwater Kent Laboratories of the Electrical Engineering Department were completely renovated over the summer, and work was begun on Salisbury Labs. Olin Hall of Physics was dedicated. The antiquated Washburn Shops now housed a 1 kw atomic reactor. There were changes in policy, too. Perhaps the most striking innovation was the initiation of a quality point system. Curricular changes were made to meet the constant advancement in engineering. Electives were now available to juniors and a broader selection of courses was offered in the senior year. A new B.S. degree program in mathematics was made available.”

With indication of a trend in every sentence, and in the unsurpassable way of the young, he thus stripped down to a few

The development of an analytical mind is an essential part of an engineering education. But equally important is the development of imaginative and creative thought. —Arthur B. Bronwell, 1957
words a series of events which had involved years of work, study, financing, and the dreams of two presidents.

President Cormeny had first outlined the plan in paragraph after paragraph of farsighted perspective of what Tech might one day become. Then President Bronwell had picked up the program to implement much of what his predecessor had initiated and to add his own impressions to a blueprint of long-range development on Boynton Hill.

When Arthur Bronwell resigned in 1962 to become Dean of Engineering at the University of Connecticut, the enrollment of Worcester Tech had reached the twelve hundred mark. In the eight-million-dollar development which had evolved during his seven years of presidency in “Room 101, Boynton Hall,” one of the most conspicuous projects was the building of a dormitory which overlooked the playing fields and extended into a quadrant-shaped dining room. This hall was named for the Morgan family, which had served through three generations of trusteeship in a continuous leadership from the time of the Institute’s founding.

Aluminum letters in Tennessee greenstone marble told the story of the other major addition, a gift made possible from the foundation provided by Franklin W. Olin, a New England boy who had become one of the country’s leading manufacturers.

“No,” said one of the Foundation trustees, “it is not a gift, it is a tremendous responsibility.”

This was the first time that Tech had been substantially assisted by a Foundation, although there had been several instances when salary increases for the faculty had come from such sources. While the new building, which was to become the home of the Physics Department, materialized on the West Street property given by Aldus Higgins, Allan E. Parker (head of Physics since 1949) was often seen circling the site, hurrying along as if he couldn’t wait and smiling as if he still couldn’t quite believe it.

The department of Physics had begun with the school, as a degree-granting course. It had been soon absorbed by General Science, then later emerged as a separate entity. Physics had spawned many other departments and courses during the years. Electrical Engineering, for instance, had started under its supervision. Its growth coincided with the interest in physical sciences and was encouraged by the reputation of its brilliant physicists—Kimball, Duff, Ewell, and Masius—with thirty-four years their average length of teaching time. The department was as well known for the publications and personalities of its professors as for its instruction and its graduates.

Chemistry and Chemical Engineering stretched for the first time in years to fill out the old building they had shared with Physics. “Facing the problem squarely,” said Wilmer L. Kranich, now head of the department, “Salisbury Lab is not exactly a modern facility for the teaching of chemistry.” He dreamed, too,
of a new building where there might be room for his two divisions, for graduate projects, and for intensive research.

There was no one to argue that Chemistry and Chemical Engineering did not merit better accommodations. Initiated by Tech’s presidents, Professors Thompson and Fuller, who had been the first two chemistry teachers, the department had largely led the academic development of the school. The reputations of Professors Kimball, Jennings, and Wilson became even more lustrous with the accomplishments of such successors as Professors Kranich, Feldman, Plumb, Smith, and Shipman. There was no erstwhile student who would ever forget the consummate skill with which Harry Feldman made the complexities of chemistry comprehensible even to the greenest of freshmen. No teacher’s death was ever more genuinely grieved than that of Professor Feldman’s in 1962.

The Salisbury Laboratories had become unbearably cramped, even with the two additions built since 1939. “I went into Salisbury Hall and I thought it was about the bummest educational building I had ever seen in my life,” was the straightforward comment of one of the Olin trustees.

Nevertheless the Olin Foundation gave the new Physics building “not because it is needed [which it sorely was] but because we believe in the college’s distinguished record of almost one hundred years of education in science and engineering . . . The students of Worcester Tech choose what they want, go where they want, and work for whom they please.”

Several industries, notably the American Optical Company, contributed to the new equipment of Olin Hall, but most of it—the Van de Graaff Accelerator, the equipment for research in nuclear magnetic resonance and for X-ray diffraction—came with the gift of the building. Tech became the first school in the country to provide experience with an accelerator to undergraduate students.

Throughout Olin Hall there were frequent directions: “Do not touch.” “Don’t sit on the table.” In the sophomore laboratory piers were sunk twenty feet down into the ground as foundation for the square stone slabs to be used for vibrationless experimentation. The accelerator itself was placed in a concrete vault also deep underground. And there physicists studied the forces that hold nuclei together while a radiation detector, catching stray neutrons, sat squarely nearby on an old Washburn stand.

With the accelerator, and the nuclear reactor across the street, Worcester Polytechnic Institute was equipped to teach the principles and utilization of atomic energy.

It was a deft decision that put the nuclear reactor in the Washburn Shops. Architecturally the old building became a monstrosity. The blurry and beautiful hand-blown panes of glass, disparagingly spoken of as “rickety wood-framed windows,” were replaced by modern glass blocks. Three hundred tons of concrete were poured to make the five-foot thick walls of the deep pit

It is well and good for a foundation to come in here and lay down $1,229,000 for a building and equipment. That, even in today’s fantastic figures is a great deal of money. It comes from toil and work and it comes from capital.

—Charles L. Horn

We have a long history of the project type of teaching. We are small enough so that the undergraduate can work over a period of years in intimate contact with productive scientists and engineers on the faculty.

—Benjamin A. Wooten, 1960
which held the aluminum-lined pool. This pool, the home of the reactor, looked like nothing so much as a very deep swimming pool. The water, however, was so clear and still that only Professor Leslie C. Wilbur’s vow that it was there made it believable.

This nuclear facility was the first reactor of its type in New England, the only pool reactor in the country built for an output of only a thousand watts, the only one in the Northeast devoted to teaching. “Its purpose,” exclaimed Professor Wilbur, “is to show students how chain reaction works and how to control it, not to capture or use its resulting heat.”

“But how safe is it?” queried the police, the firemen, Civil Defense and health officers, and the neighbors. “If the alarm rings, how fast should we run?”

“Not fast,” answered Professor Wilbur, so casual that fears were soon allayed. The reactor was capable of producing only the heat-equivalent of the energy consumed by two five-hundred-watt light bulbs or a toaster, he said, yet it offered ideal teaching potentials.

Professor Wilbur found himself as often with the responsibility of public relations as that of teaching. Fortunately for the visitors, his terms were comfortably colloquial. “This is a cutie pie,” said the Professor, with the facetious explanation that the designer had named this particular piece of equipment for his wife and “cutie pie” it had thus been catalogued. Actually it was a phonetic adaptation of QTπ. Atoms were “smashed”; here was the “scram” button. These metal plates, which acted as a sort of damper, were called “safety blades.” And over in the corner, in perfect anachronism, sat another Washburn drawing stand.

There was tension as the time drew near for loading the fuel. Seven drums containing twenty-six fuel sticks of uranium alloy, each weighing eleven pounds, had been delivered by the Atomic Energy Commission, the donor of the facility. The Worcester newspaper announced on December 18, 1959, “The reactor is expected to go critical perhaps by tonight.”

But first Professor Wilbur had to find a wide-mouthed plastic bottle to hold the few grams of plutonium and beryllium which would serve, in layman terms, as a pilot light to initiate the atom-smashing process. Where else but at Sol’s, the corner drug store which had been Tech’s source of all sundry supplies for as long as anyone could remember? As usual, Sol (Solomon Hurowitz, Class of ’22) had just the thing, a plastic baby bottle of exactly right proportions. Professor Wilbur filled the bottle with the powerful isotope, fastened it to a string and then swung it into the water adjacent to the fuel—as simple as that. Streams of neutrons collided with the nuclei of the uranium atoms, splitting them and releasing energy in form of heat.

But at this stage the reactor was still subcritical, unable to

To me, the most amazing thing about science, and the most surprising and exciting fact about our world, is this astonishing connection between highly abstruse theoretical ideas and the matter of fact—in this case, the housewife boiling her kettle with power from nuclei.

—Sir George Thomson
produce neutrons by itself when the initial “kindling” of the plutonium and beryllium was removed. The great precaution, of course, was to keep the reactor from becoming supercritical by adding too much fuel.

One by one the fuel sticks were carefully added and the process of measurement repeated. The core of fuel began to reach critical proportions, with excitement and responsibility mounting after each addition. Finally the twenty-fourth test indicated that the reactor was producing heat without the help of the radioactive booster. A chain reaction had been achieved. The reactor was on its own; it was “critical.”

According to Professor Wilbur or his associate, Bernard Hildebrand, the reactor was not complex or dangerous. Nevertheless there were safety precautions. Doors were securely locked; permission was required for admittance, and the reactor, monitored twenty-four hours a day, was connected by telephone to police headquarters via the American District Telegraph Company. Only twice did the squawking sound of the alarm rasp its way across campus—once when the professor forgot to shut off the automatic alarm when he entered the room on a Saturday morning, again when a change in voltage tripped the alarm. A.D.T. guards, police, and reporters so soon swarmed around the old Washburn building that no one again doubted the efficacy of the reactor’s safety provisions. “But sooner or later,” predicted Professor Wilbur, “some student is going to smuggle a gold fish into the pool.”

The reactor was soon used by all departments of the school to teach the handling of radioactive materials and to illustrate the fundamentals of reactor operations. Its most important function from a community point of view, however, was the advantageous proximity of radioactive isotope production, which was made available free of charge by both the reactor and the accelerator to non-profit organizations such as schools and hospitals and for research in activation analysis.

Possible applications of atomic research appeared to be endless, and the world held its breath to see how rationally this devastating and wondrous power would be used—in medicine, agriculture, construction and industry or in human annihilation. At any rate, Tech’s facilities were now exceptional for the study of molecules and atoms, thanks to the reactor and to the accelerator in Olin Hall.

Many dignitaries and guests attended the dedication ceremonies of Olin Hall. During the procession a comparatively new professor, Benjamin A. Wooten, stood on the sidelines busily snapping pictures. Everyone was seated, the program about to begin, when Professor Wooten saw a lone figure trudging up the West Street walk from Salisbury. The man wore a white suit, a Panama hat, white buckskin shoes, striped shirt, bright tie, and a jaunty air which unmistakably belonged to Morton Masius.

Morton Masius
Hurriedly, Professor Wooten volunteered to find a place for the elderly visitor.

"There’ll be a place for me," said Dr. Masius with confident dignity.

And indeed there was a place for this emeritus professor who had come back to share the pleasure of this great day, a day which he had helped make possible by his own scholarly achievements.

On the same day of Olin dedication, the Alumni Association conducted its meeting and luncheon for the first time in Morgan Hall and for the first time elected a woman as an honorary alumna. Gertrude Rugg, retiring after forty years as registrar under a beatitude of blessing and with emeritus status, relinquished her position of “not work but delightful fun” to Athena Pappas.

Boynton Hall meanwhile had become a beehive of administration, complete with organization charts, vice-presidents, and directors of development. There were new committees—Development, Finance, and the Industrial Advisory Council—all created to give the president a hand in running the growing institution. Talman W. Van Arsdale, Jr., was the first executive vice-president. There were to be two deans—one, the dean of students in charge of student relationships, admission, placement, and counselling; the other, the dean of the faculty in charge of academic programs and faculty relations. Donald G. Downing was appointed to the first post in 1955; M. Lawrence Price to the second in 1957.

With his booming voice, his merry, twinkling eyes, and a deep dimple creasing his cheek, Dean Downing—in the words of the students—had been a “terrific teacher.” “Why?” said one boy when asked for the reason. “Well, he enjoyed what he was doing and he made it clear that he enjoyed it. Whenever we didn’t understand anything, he apparently loved the challenge of explaining it again, or another way, until we did understand.”

Dean Downing’s zest for campus life was doubly effective when he transferred to administration, especially in the felicitious capacity as Dean of Students and Admissions. At this desk he came in contact with all of the boys, not just a few of them, and the whole school benefited because of his aptness in human relationships.

An avid sports enthusiast, Dean Downing attended as many games as possible. “The Dean believes a good athlete can also be a good student,” the Athletic Department reported with pleasure and surprise.

When Dean Downing suffered a stroke in 1964, it was a tragedy that hit the whole school hard.

By the time the personable and capable Dr. Van Arsdale had resigned to become president of Bradley University, the position of vice-president had become so thoroughly justified at Tech that an alumnus and trustee of the Institute, James C. Walker, helpfully stepped in at a dollar a year for one school term. In 1962
Dean Price was appointed vice-president as well as Dean of the Faculty.

Dr. Van Arsdale, before serving as executive vice-president, had been the first man to hold the Institute’s title of Director of Development. He was succeeded by Ross Alger, then by Frederick L. Broad, Jr., in the necessary function of aligning the plans for tomorrow with what can be done today. Public Relations, no more than a new name for an old job, first appeared with its title in 1962 with Robert S. Fox as director. A Tech alumnus, Roger N. Perry, Jr., was appointed in 1964.

In 1959 Dean Price announced the results of a two-year study of academic development. He had not handled this job alone, which was in itself the best part of the effort. With a mania for communication as well as for cooperation, he had excluded or excused no one from participation in the debate. “The left hand should know what the right is doing,” he contended as he invited everyone, even the athletic director, Robert W. Pritchard, who had been named full professor of Physical Education, and the ROTC director, Lieutenant Colonel Gardner T. Pierce. At last the humanities were also recognized as part of the family.

Actually the decisions were for direction rather than for details. In brief, they involved a broadening of the humanities, they provided electives instead of options, leaned heavily toward mathematics and science, advanced technology and communications, and encouraged a high level of graduate and research work.

To introduce the new curriculum there was an almost-new staff, the Institute having had many additions and a change of five department heads within a two-year period. These men were new in more ways than one. Since 1888 the Institute had served as its own training school for teachers, many of the graduates making the long, slow climb which took them through the levels as graduate assistant, instructor, assistant professor to full professorship. Sometimes it took as long as twenty years to make the full ascent. This in-breeding, of course, was not peculiar to W.P.I., for many schools had recruited their teaching staff in a similar manner. It was only as the community of learning widened that a better distribution of educational leadership was effected.

Bringing many new capable teachers to Tech during the 1950’s was perhaps Arthur Bronwell’s greatest contribution to the Institute. President Bronwell, who had been executive secretary of the American Society for Engineering Education, was as well acquainted with the men in the profession as with its trends.

The engineers and educators, in turn, had a high regard for Arthur Bronwell. Recommendation enough for any school was the fact that he was its president. Thanks to him, Worcester Tech grew considerably taller in the minds of many knowledgeable persons in engineering education, a realm where stature really counts. Several teachers of extremely high caliber were thus at-
tracted to this eastern school, which otherwise might have entirely escaped their attention.

Glen A. Richardson came to the Electrical Engineering Department in time to supervise the renovation of the Atwater Kent Laboratories and the removal of forty truckloads of obsolete material from the big building. “But not the ideas,” insisted Hobart Newell, teaching since 1921 and now trying to discover why the high voltage lines he had pioneered in the previous generation were raising such havoc with radio and television communications. “No, the ideas haven’t changed, just our understanding of them. Why, even if they deliver electricity to your back door in a bucket—which they may well soon do—the principles will be the same.”

Not yet reduced to bucket size, the heavy equipment of the laboratory had nevertheless become so miniaturized that the great open laboratory was now a yawning empty space which Dr. Richardson soon began filling with laboratories for the study of electronics, transistors, computers, servo-mechanisms, high frequency circuits, direct energy conversion, and microwaves. There were additional areas for graduate study, conference rooms, and offices. Across the street, the department’s acoustics laboratory was supervised by William B. Wadsworth in the house which had been the birthplace of Milton P. Higgins II, a generous Tech trustee and the grandson of the man of the same name who figured so prominently in the early Tech story.

On a clear and breezy June morning in 1964 Dr. Richardson had the opportunity to meet a member of Tech’s first class in Electrical Engineering, Robert S. Parks, who had come to the Hill for his 71st reunion.

“I started out in Mechanical Engineering,” said this dapper gentleman, aged ninety-two, who after graduation in 1893 had gone on to pioneer in industrial air conditioning.

“When this snap course about electricity came along—well, I wasn’t going to pass it up,” joshed Mr. Parks as he and the new professor companionably traced the long journey which electrical engineering had taken in the last seventy-five years from a set of simple principles to a maze of complex applications. In 1964 Electrical Engineering was by far the biggest department in the Institute, graduating seventy-five from a class of two hundred and thirty-five.

Down in Kaven Hall Carl H. Koontz had stepped into the place of his senior professor, Andrew H. Holt, who died on Thanksgiving morning in 1956. Professor Koontz had been a member of the Civil Engineering Department since 1945, had moved with it to Kaven in 1954, and was now shaping a new philosophy for its instruction. Some specialties, such as surveying, drafting, and stereotomy, on which the students had formerly worked a great portion of their time in Civil Engineering, had been parceled out to specialists and technicians, while engineering itself had become

When I try to recall all that science and research have developed during my lifetime, I may be excused perhaps if I confess being slightly confused. I confess further however to being in a continued and continuing state of surprise at what is rolling on from day to day.
—Robert S. Parks, 1963 (Class of 1893)
involved with social motivations. City planning, transportation, safety, health, air pollution, sanitary engineering—the possibilities were as numerous as human problems.

Change, so prevalent in all departments, was even more noticeable in Civil Engineering. Not only were materials and methods advancing every day, but Nature, Civil Engineering’s primary partner, was as unpredictable as ever. “Just look at the weather,” reminded Professor Koontz as proof of his point, “and a civil engineer still gets only one chance. If a bridge falls down, he can’t say, ‘Well, that’s one for the record,’ and let it go at that.”

Ballast for Civil Engineering was provided by Carl F. Meyer, a professor at Tech since 1924, and Arthur J. Knight, still on campus after an association of sixty years. “They’re teaching subjects now I never heard of,” Professor Knight confessed. Twice “A. J.” had been acting-head of the department and now was listed as professor emeritus and consultant for building planning. He had to admit, though a bit grudgingly, that a map made from photographs taken in flight beats “all hollow” the old way of slogging through bushes and brush to set stakes out for measuring. But these new machines and computers—“Why, the boys are wedded to them! Can’t do a thing in their heads.”

Donald N. Zwiep, a young man with both teaching and engineering experience and a mellifluous voice to explain either one, became the head of Mechanical Engineering after Gleason H. MacCullough’s death (he had taught for forty years) and a brief period when Dean Price served as department head before moving on to administration. Within a short time Professor Zwiep had corralled a staff with a wide diversity of geographical and educational backgrounds. He built his faculty with the same kind of care with which the old M.E. professors had supervised the building of machines in lab practice, paying as much attention to stress and strength in his teachers as they did in their teaching of mechanisms and machines.

Professor Zwiep was soon initiated into the non-sophistication of an old school. The presence of Esther P. Gaylord, who had been secretary of the department of Mechanical Engineering since 1937, was immeasurably helpful.

“Tell me, please,” phoned Gertrude Rugg, the registrar, one day soon after Professor Zwiep’s arrival on Boynton Hill, “how many mechanics do you have in your department?”

Puzzled, Professor Zwiep turned to Fred Webster and repeated the question, “How many mechanics do we have?”

“Oh, about two and a half,” slyly answered Professor Webster, knowing all the time that Miss Rugg really meant “mechanical engineering students” but nevertheless enjoying the little joke on the new professor.

By tacit agreement, Miss Rugg went on calling the boys mechanics. At the same time, Professor Zwiep made it clear that he intended to give his students the status of engineers.
Upstairs in the Higgins Laboratories, B. Leighton Wellman, whose book on *Technical Descriptive Geometry* now rivaled all others in the field and was being translated into other languages, was king of the realm where he chose to stay. Since 1950 he had seen his department—once known as Mechanical Drawing, then as Engineering Drawing—shift its content and emphasis until the term Engineering Graphics better described the scientific approach. Now he planned a new book with a title to reflect this change: *Graphical Analysis and Communication*. Simplified, it was still the course in good engineering design which he had always taught. He particularly disliked the redundancy of “Creative Design.” “How,” he often sputtered, “can design be anything else?”

Downstairs, also in the Higgins Lab, Kenneth Merriam had become the professor of Engineering Mechanics. Thirty-five years before, Francis Roys had been head of Mechanical Engineering and had written a report to the president about the young professors in his department. After the name of Wellman he had written: “He is shaping up for an important assignment and deserves recognition”; after Merriam, “An exceptional young man. High order of theoretical and practical ability.” These were appraisals with which the new department head heartily concurred.

In Stratton Hall, Mathematics had become a full-fledged degree-granting department, with Elliott L. Buell succeeding to its supervision and Richard N. Cobb named as the John E. Sinclair Professor of Mathematics.

Dr. Buell—as noticeably did all the new department heads—had a way with philosophy and with words. Mathematics had made greater progress in the last half century, he said, than in all the five thousand previous years, since that time so long ago when peoples had been divided into two groups—the ones who moved around and the ones who didn’t. While the first kind had learned to count their flocks, the second had found it necessary to measure their fields. Arithmetic and algebra were developed by the first, geometrical concepts by the second, and the two were united by the Renaissance. Mathematics had then initiated a progression which unfortunately moved faster in research than in education. Dr. Buell declared that, downstairs in Stratton Hall, an IBM 1620 computer was one indication of how education at Worcester Tech intended to catch up. This computer, to serve the whole Institute, not only could give the right answers but also would refuse the wrong questions. A long time ago Dr. James Pierpont (a Tech graduate who came back from teaching Math at Yale University to speak at W.P.I.’s commencement in 1909) had expressed the hope that some day Math would be taught at his Alma Mater as science rather than as logic.

With all the splintering that had developed with specialization, Mathematics had become the only common language of the scientists. No longer did the presence of both English and Mathematics...
under Stratton’s roof seem to be such a strange alliance, and the
way both staffs were growing, there was evidence that sooner or
later one would crowd out the other. “Golly,” said Edwin Higgin-
bottom, emphasizing his point as well as the second syllable,
“these boys have to make a life as well as a living. They’re hungry
for the humanities. It’s the old story all over again—if your son
asks for bread, do you give him a stone?”

The most visibly significant change in departmental life at
W.P.I. was that all the buildings were for the first time given
doors leading toward Boynton Hall. Always before the depart-
ments had pointedly avoided facing each other. Now it was be-
ginning to look as if nothing ever again would be strictly elec-
trical, chemical, or mechanical.

This was the open-doored campus that greeted the tenth presi-
dent of the Institute in 1962. After almost a hundred years of
establishing and proving itself, Worcester Tech was finally ready
to assert itself.

Ready, too, was the three-star general who became its president
—Harry Purnell Storke. General Storke’s most recent assignment
had been as NATO Commander of the Armies of Greece and
Turkey. His career had ranged from field artillery to public in-
formation, from the Italian campaign of World War II to the
command of 114,000 United Nations troops in Korea. He was
also at home in academic surroundings because of his teaching
experience at West Point and Iowa State College. “I have great
faith in American youth,” confidently said the new president.

The Institute, he said, should be as able to withstand change
as to welcome it. He gave the impression of being able to do the
same. His eyes could turn to stars as easily as to steel; his will was
no more inflexible than his sympathies. “And he has the same
depth of sincerity as had President Earle,” delightedly decided one
of the older professors.

In the City’s Memorial Auditorium, with the panoply of the
brass section of the Detroit Symphony Orchestra providing the
processional, Harry Purnell Storke was inaugurated as W.P.I.
president during Worcester’s Music Festival week in October of
1962.

President Storke soon learned the traditions of the Institute
and labeled them as “solidly based, completely practical, and
wisely foresighted.” By fortuitous coincidence he had spent sev-
eral summer days before his inauguration with one of Tech’s
professors who knew the school both objectively and subjectively.
Carl G. Johnson, who was in the process of raising funds and
interest for the new Materials Engineering Laboratories, was both
old and new. He had been on campus since he was ten years old,
first as an errand boy in his Uncle Johnny Jernberg’s forge shop.
In 1957 he had been named full professor; in 1962 he became
the first John Woodman Higgins Professor of Engineering. Al-
though Professor Johnson had maintained part or full-time teach-

Your high office carries with it a number
of privileges, the most important of which
is that of serving as the abject slave of
at least eight masters. They are as fol-
lows: the Board of Trustees, the faculty
and staff of the college, the alumni, the
students, the parents of students, the fin-
cancial benefactors, the various institu-
tions of learning and genius or committees
of public service, and the general public.
You must satisfy them all—no one at a
time, but simultaneously.
—T. Keith Glennan,
Address at President Storke’s
Inauguration, 1962

Harry Storke will be there to be the best
college president in the country. It will
be his complete life. The people in
Worcester are damn lucky.
—Colonel Harry G. Morris, 1962
ing relationship with Tech through the previous years, he had also co-founded a manufacturing company. It was a proprietorship which had not made him so practical, however, that he could not still be dubbed at the school as “Blue-sky Johnson.” His specialty had shed many shells during its development from metals to materials, from the forge shop to the laboratory, located twenty years in Stratton and as many in the Higgins Laboratories until it came full circle back to the Washburn Shops.

Carl Johnson had developed his Laboratories much as he had developed his subject, by close contact with industry. When the Washburn Shops stepped out briskly in the new togs of Materials Engineering, complete to an armored warrior standing in the corner, there were seventy-five contributors on Carl Johnson’s list of industrial benefactors. Many of the company names were the same ones found on the original list of contributors to Boynton Hall’s building fund nearly a hundred years before.

Less than a month after President Storke’s inauguration, two directors of the Olin Foundation visited the W.P.I. campus again. Welcomed at a convocation in Alden Hall, these men stormed at everyone within listening range. To the administrators: “Student admission and distribution is too strict. Mass education is coming whether you like it or not.” To the trustees: “A college of this size should have an endowment of thirty-six million dollars.” To the community: “Education is the fastest-growing business in your City.” To the students: “I can tell you you are not paying your way, whether you like it or not. You have a moral obligation to pay back to the college a portion of the money that was spent on you.” To the teachers: “Your business is to see these people get an education. You can no longer be an ivory tower.” To the alumni: “If you are going to keep this college growing, you must make up your mind that you will pay your share of the cost.”

Abruptly the scoldings were concluded with twinkling eyes and the surprising statement: “We are going to give you a new chemistry and chemical engineering building to be finished in 1965.”

It was impossible not to be reminded of another manufacturer who, a hundred years before, had come down from the northern hills in a horse and buggy with a hundred thousand dollars and a dream in his pocket. John Boynton, too, had struck a bargain — making it clear that he would not release his money unless and until the community would promise to support his project.

James O. Wynn and Charles L. Horn said virtually the same thing. “This is a technical institution,” said Mr. Wynn. “The young men who are coming here are coming for a technical education. But I hope that they will also be given an exposure to the literature, the drama, the art, the music, and the history of our Western peoples. so that as engineers or scientists they will have some
knowledge of how in the past men have solved their problems or failed to solve their problems.”

The very same dream—in almost the same words. The founding letters of John Boynton and Ichabod Washburn were dusted off to find reminiscent phrases—“The instruction...best adapted to train the young for practical life . . . so that the benefits of this school shall not be confined to the theories of science”...“principles which will give the greatest advantage in the affairs of life”...“moral and intellectual training”...“to elevate in intelligence and influence and add to their personal independence and happiness, while it renders them better and more useful citizens.”

It was almost the first time anyone had had the courage to re-read the founder’s letters, so little hope had there been of fulfilling all their specifications. But the 1960’s was an era for facing the truth. A course in Philosophy and another in Comparative Religions, several in Economics, another in conjunction with Clark University for Biomedical Engineering, and still another planned for Management Engineering would at least approach some of the requirements. But there were scores of areas still untouched or only partially attempted—coeducation, business, merchandising, teaching, agriculture, philosophy, architecture communications, and of course the humanities.

It had been a dream big enough for one century. It could be a big enough dream for another and another and another.

General Storke looked carefully at the past before he planned the future. Then in 1963 he published a report entitled Responsible and Responsive in which he quietly asked for almost twenty-four million dollars to establish a “rational control over our own destiny.” He declared there would be no jeopardy to the Institute’s high standards because of either one of two pressures—the anticipated rise in college enrollments or the rapid changes in technological progress.

The initial step was the completion of a new dormitory in the fall of 1963, the third in the history of the school. This one, named Daniels Hall, would house an additional one hundred and eighty boys, give Tech News and the Peddler new offices, and the bookstore another home after having been located at one time or another in almost every building on campus. The hall was named in memory of Fred H. Daniels, a graduate of Tech’s third class, a Worcester manufacturer, and Tech trustee. One of his sons, Clarence, had been a student and a good friend of Tech. Another son, Harold, was a near neighbor and also a long-term trustee of the Institute. He had long ago resolved to become a “tow man” for Worcester’s horse railroad. It had usually required no more than two horses to pull the old trolley cars, but for the long Lincoln Street hill where Harold lived a third one was necessary. The three horses would pull the trolley to the top of the hill, then the “tow man” would ride blithely down the hill on one of them.

Each of us has certain strengths in certain places. There is no sense in duplication.
—Howard B. Jefferson, president of Clark University, 1963

The new degree-granting program promises to give the Worcester community a leading place in the development of a new science—the exploration of biological problems with tools of electronics.
—Worcester Evening Gazette editorial
to wait for the next car. The observing little boy had decided right then and there that this was the perfect job. Somewhere along the way his ambitions changed, for he later became president and chairman of the board of Riley Stoker Corporation.

The Daniels succession of interest in Worcester Tech had paralleled that of many other families in the City—the Harringtons, the Morgans, the Higginses, the Coghlins. And family alumni succession since 1896 (when the first son of a graduate had matriculated) was highlighted in 1955, when a fourth-generation Morgan enrolled as a student. Of the more than fifteen thousand persons who had become members of the Alumni Association, almost eight thousand were still living and represented by twenty-two alumni chapters. The graduates and their accomplishments deserved a book all their own. “These men are going to make our future world,” Warren Zepp, the Secretary-Treasurer of the Association, said with solemnity. President of the Association in Tech’s Centennial year was Warren C. Whittum, a member of the 1930 class. Wayne E. Keith, a graduate of 1922, was the first alumnus of the school to serve as chairman of the Institute board.

An adjunct to the Alumni Association in Worcester was the Tech Old Timers Club. And in 1950 the W.P.I. Alumni Wives Club had been started off in high style with President Cluverius’ classic remark: “It’s good to see the women getting into things because they make a thing go, no matter what the direction.”

Contemplated in 1963 as the next building project was a centralized library. This need had been passed along from administration to administration, repeatedly getting lost under more insistent pressures. There were great hopes for this library, which was to be placed on the hillside facing Boynton Street. The new librarian, Albert G. Anderson, Jr., was adept at describing its carpeted, air-conditioned lounges, its study areas, typing rooms, seminar and reference rooms, its language, music and film centers—open twenty-four hours a day. “The students of Tech need it,” said one good friend, as he looked over the plans, “but more than that, they deserve it.”

“But do we have the money?” asked someone more realistic.

“Well, let me put it this way,” answered the new librarian, “Tech intends to break ground next spring.”

The old cliche was unavoidable: “Maybe when they break the ground, they’ll dig up the money.”

And no doubt they would. No one was hoping so much as the Physical Education Department, whose facilities came next on the list of major projects. The first part of a field-house complex had been wrapped around the gymnasium in 1961 giving a suite of offices to Tech’s doctor, William H. Quinn, Jr., and space for bowling alleys and varsity locker rooms. But a basketball floor, an indoor track, a great assembly hall, and guest facilities—all these were needed.

The football team had missed by one game being undefeated
in 1958; in 1953 the lacrosse team had had a player named Lacrosse. Otherwise there had been nothing sensational to report. Athletic activity was nevertheless a vital part of the educational process at Worcester Tech. Robert Pritchard maintained the philosophy of his predecessor, Percy Carpenter: “If they play the game hard and fair, they are always ahead.” Never yet had he been prodded into naming the best team or a best player. Relaxation, interest, expression, discipline, teamwork, instant decision, action under stress—all these were more important than winning “Sure, we all like to win . . . But what is winning?” he wisely asked. Rather than complaining about the limited time allotted to athletics, he spoke of the great amount of time saved because his boys were so intelligent. “They understand things like design, cause and effect. There’s no need to drill, drill, drill.”

The fraternities were a built-in supply for athletic teams, just as they were for social activities. Keeping more than thirteen hundred young men happily occupied when not studying had largely become the task of student organizations and fraternities. There were honorary societies, literary groups, musical clubs, religious groups, and professional societies. Fraternities, thirteen of them, had had an admirable relationship with the Institute, with teachers retaining active membership and serving in advisory capacity. Claude Scheifley, chairman of the Interfraternity Council, had presented scholastic and improvement prizes at the first assembly of almost every school year since 1947. Four of these prizes had been established by George Fuller, the young lad who couldn’t go to Tech but grew up to become chairman of the board at Wyman-Gordon Company.

The Institute’s complete revision of courses in 1959 had resolved into a continuing process. While the old technologies had altered their definitions and directions, dozens of new ones were clamoring for recognition—ultrasonics, bionics, hydroponics, oceanography, aerospace dynamics, electronic ground control, urban planning, nuclear power, alloying, magnetohydrodynamics, cryogenics, to name only a few. Sometimes the enthusiastic additions to the curriculum were brought up short by President Storke’s question: “But what are you going to let go?” This was the dilemma.

The professors, like gladiators, came armed with briefcases full of ideas for this “arena of the intellect” at Dean Price’s Round Table, which wasn’t round at all. But three big books and two piles of notes stood there in tribute to the academic freedom of speech exercised during recent years at the Institute. The arbitrator who sat in quiet surveillance was the pacemaker, Dean Price.

The Dean was not new in this role. During many years of thorny transition he had herded the teaching staff in their adjustment to the school’s new status as a top-level college of engineering and science. During the experience he had held the reins
of academic development with a calm and steady hand, balancing how fast with how far there was to go.

There were now a hundred and twenty-four members of the faculty—one to each ten students—plus many assistants and part-time teachers. Eighty-seven had come to Tech during the last ten years; a few had been a part of Institute life for more than forty years. The new ones had already separated into a Young Faculty Association, but the older ones hadn’t bothered to organize, so sure were they of themselves in a battle of wits. Strangely enough, some of the younger men were the most conservative; some of the older ones, the most adventurous. Many of these teachers, as had become traditional for teachers and graduates of the Institute, had published textbooks. But authorship was not a measure. “The honor that comes with it,” explained one of the authors with tongue in cheek, “is in lieu of salary.” Many teachers were officers in local and national engineering societies, and the majority were PhD’s who to a man would defend the position held by Carl Johnson, who had had no formal education at all.

Every one of the professors, too, had a theory about the differences between engineering science and scientific engineering, about the desirable proportion of humanities and science, about theory and practice, or chemistry and physics. As meanings came closer and closer together, sometimes they were all talking about the same thing with different words.

With their educational tools becoming obsolete quite as rapidly as their mechanical ones, the faculty now accepted concepts, not courses, as of primary concern. Engineering seemed to be in the middle of the road where civilization began. “What can we do?” looked in one direction, “What does it mean?” in the other. There was emphasis on how students learned rather than what they learned. Finally, after so many years, Solomon’s advice, “Wisdom is the principal thing,” was beginning to make good sense.

Also to be closely watched were general trends toward the humanities, programmed learning, flexibility, accessibility of materials with microfilm and computer, cooperation with other institutions, and multi-purpose curricula.

Much faculty discussion revolved around the ratio of research to be sponsored by the Institute and by outside sources. Contrasted with former years, when Tech’s research was confined largely to the Alden Hydraulic Laboratory and the efforts of a few faculty members, no department was now without its sponsored projects. For instance, Robert C. Plumb, in Chemistry, had designed ingenious equipment for experimental purposes; C. William Shipman had headed a project which won the coveted Silver Combustion Medal for work in turbulent flame equipment. Electrical Engineering was involved with acoustics, controls, communication, and instrumentation; Chemistry with oils, optics, vapors, liquids, and gases; Physics in radioactivity, enzyme synthesis, cosmic rays,
and microwaves, even in the high frequency sounds made by queen bees; Mechanical Engineering in materials, stress, and grinding; Civil Engineering in civil defense, properties of construction materials, concrete mixes, and urban planning. There was also the activation analysis available from the nuclear reactor facility, which periodically had been extended since its installation in 1959. This analysis was further extended by the Van de Graaff accelerator, which directed, with impressive results, much fundamental research in nuclear structure.

Boynton Hall was not exempt from research activity. Joseph F. Zimmerman, professor of Economics, had conducted surveys for the government in research facilities, public administration, housing, and atomic energy. He was also active in local government, the Citizens for Neighborhood Improvement, and the Citizens Plan E Association. Edwin Higginbottom, head of the English Department, had served on Worcester’s School Board.

The Institute’s one facility which outclassed all others in research experience, of course, was the Alden Laboratory, which had become as well known internationally as nationally. Within a ten-year period its productivity had doubled under the supervision of Leslie Hooper and Lawrence Neale. Its experimentation had turned from empirical hydraulics to fluid mechanics when aeronautics had first emphasized the similarities rather than the differences between air flow and water flow. At Tech the merger of practical and theoretical fluid dynamics had been effected neatly when the research on air flow formerly done by the Aeronautical division was transferred to the Alden Lab, which had always before concerned itself only with water. This merger had been innovated by Gleason MacCullough’s early teaching in Theoretical Aerodynamics and the aerodynamic tests of the old Aero lab. The files of the Aero division also showed that long before automobiles were streamlined in their design, Professor Merriam had one day mailed his theories about flow patterns to a Detroit manufacturer. “It would look too bizarre; no one would buy it,” replied the consulting engineer. “You’d better stick to airplanes.” Years later the first car of “bathtub” design appeared on the market. “And sure enough,” reported Professor Merriam, “no one would buy it.”

The interrelation of engineering knowledge became nowhere more apparent than at the Alden Hydraulic Laboratory when the various departments of the school began making overtures toward the sprawling facility seven miles away from campus. The first to venture out to Chaffinsville was Electrical Engineering in instrumentation. When someone now called for “Prof,” it was not for Charlie Allen as he had been familiarly known for so many years, but likely for Professor Newell from the E. E. Department. Cavitation, a problem common to Materials Engineering and hydraulics, was now overlapping. Civil Engineering projects, such as water seepage, constituted another area of dual research.

It is the private educational institution that currently furnishes us with the great bulk of basic research in physical science and engineering throughout the Commonwealth.
—Governor Christian A. Herter, 1957

W.P.I. produces more than achievements. Behind the world of phenomena exists a world of values, of which individualism, initiative, and integrity are a part.
—Donald E. Johnson, 1956
The department of Economics was planning a Centennial-year conference focused on the problem of water, thus for the first time uniting Political Science, the engineering departments, and the Hydraulic Laboratory.

Donald Zwiep, head of the Mechanical Engineering Department, under whose direction the laboratory was operated, made known his intention to increase its value as an educational facility on both graduate and undergraduate levels. “The real reason for its present and future existence,” he said, “is the laboratory’s contribution to the total educational program at Tech.”

As early as 1940 Kenneth Merriam, who had been chairman of the W.P.I. Research Committee, had suggested that an experimental station be established at the Alden Laboratory, and many persons were later to contemplate such a development with enthusiasm. Professors Hooper and Neale planned for the day when, from a facade at the street, the facilities would sweep down past the pond, past the Susquehanna model on one side, the Niagara Falls power project on the other, to the tree-lined valley, where Tech’s advance guard of research might ideally find its station. But while potential and planning were making their own homogeneity, the laboratory continued its own hydraulic experimentation in the sylvan setting where the never-ending sound of running water told and retold the laboratory’s colorful story. In the plans for a new building there was provision for Diesel pumps. “‘Prof’ Allen wouldn’t like it,” says Professor Hooper. “He didn’t like tired water.”

Worcester Tech’s expansion was circumscribed only by inadequate funds.

No matter how he arranged the statistics in his comprehensive and frequent reports of “The Money Behind W.P.I.,” David Lloyd, the business manager, never could list a reserve as big as his wish. There was, however, much more money than ever before, thanks largely to his own insistence that financial management not succumb to glamorous but transitory inducements. “Our growth has been steady and sound and will continue to be so,” he stated firmly. The words somehow gave the same solid feeling as having money in the bank.

A fifty-per-cent increase of staff in Chemistry and Chemical Engineering was being added in the same careful way as each of the four floors was placed in the department’s new building on West Street. This structure, deliberately designed for the future as well as for the present, recognized the unusual alliance of Chemistry and Chemical Engineering, so alike yet so different, by providing separate wings for each division and a common center where they might meet in administrative and correlated functions.

Meanwhile, the Salisbury Building was flexing its tired partitions in anticipation of another change-over—this time to house the humanities and social studies. Boynton Hall, with its granite steps hollowed by a century of travel, one spiral staircase still securely
locked in its great stone walls, and jacks supporting its foundations, was slated to become the administrative center of the Institute.

The old landmarks were not unappreciated. After a recent Techni-Forum tour of the campus an out-of-town guest took his coffee break in the basement of Salisbury, where he was surrounded by water pipes and exposed beams. Nearby was Tech’s one remaining hydraulic elevator. In an adjoining chemistry laboratory he had seen the hundred-year-old Norton jugs so unmistakably linked with the history of the school. “This building impresses me the most,” said the guest. “This is where I soak up the traditions.”

The new eight-acre area, part of it named the A. J. Knight Field, was still in the process of being developed and so far provided nothing much more than a bigger beat for Nils Hagberg, the chief of police. Nils, according to the Tech News, “acts like W. C. Fields, walks like Khrushchev, reminds you of Kris Kringle, and smiles nothing like the Mona Lisa.”

It was Tony, Anthony Joseph Ruksnaitis, Director of Tech’s Physical Plant since 1956, who was responsible for the exceptional appearance of buildings and campus. It was also he who developed such a pride in stewardship of property that on Boynton Hill there were no status lines between professors and maintenance men.

Everyone on the Hill and in the community was annoyed at Nature’s affront when Tony Ruksnaitis reported that sixty-two elms, most of them class trees, were doomed to come down on Tech’s campus. (The Hill began to look as it did a hundred years before, when John Hurley and his gang had cut down all the trees to make room for Boynton Hall.) Then Herman Schaefer came along to make the campus more beautiful than ever. With here a boulder for character, here a cluster of daffodils for color, and there a clump of mountain laurel for native rightness, he created his own landscape pictures. Hermie had a way with growing things much akin to that of the professors in the classrooms. “Let them be natural”—you’d swear he was talking about students—“Give them room to breathe. Don’t let them get too comfortable. Keep scratching up the soil around their roots.”

By 1965 Worcester Tech’s endowment had reached a market value of seventeen and a half million, closely matching its property value. Its yearly budget had grown from the $5450 allotted to President Thompson to run the Institute in its first year to four and a half million in 1965. The Alumni Association had always rated high in proportionate giving; funds and foundations had been liberal, as had individuals and corporations. The gifts of George I. Alden, George C. Gordon, Forrest Taylor, the Higgins, Daniels, Duckworth, Morgan, Stoddard, and Harrington families had eclipsed them all in amount, but there had been many smaller gifts to match them in generosity and loyalty.

The Institute’s original intention had been to charge no tuition,
at least not to Worcester County residents, and to charge other students sixty dollars a year. This amount had been periodically adjusted until the tuition rate reached sixteen hundred dollars in 1964. But a good seventy per cent of the students were given financial aid either from scholarships or loans. An installment arrangement was also available, and it had to be remembered that in 1965 it took almost three dollars to do what one would do twenty years before. In its Centennial year the Institute expected registration to reach well up toward the fifteen hundred mark, the enrollment having doubled during the last ten-year period. In 1964 twenty-five per cent of the students lived in Worcester County; fifty-seven of them were from foreign countries. Many were married.

These were the men who would be doing the world’s work for the rest of the twentieth century. Already a recent student had been chosen for Astronaut training. There were jobs waiting in research, teaching, and engineering. Engineering definitions had changed, with instruments and technicians now able to do what the engineer used to do a hundred years ago. The transits in Kaven Hall stood like silent sentinels; there were no hot coals in the old forge. “The past is to learn from, not to live in,” reminded one of the students. And he was right.

Words like Laser, which for the uninitiated means Light Amplification by Stimulated Emission of Radiation, were tossed easily about, but there were many everyday mysteries still unsolved. Scientists were talking about putting a man on the moon before they had found out how aspirin works or why soap cleans. Snowfall was still measured by sticking a ruler down into the snow. There was still no way to mend a broken spirit or prevent a hardened artery. The common cold continued to keep students away from classes; the squeaky stair and the leaky faucet were just as troublesome as they had always been.

For this young man of 1965 there was still much work on the world’s workbench waiting to be done. He had the sympathy and respect of his parents, his teachers, and his classmates. He was the same likeable student for whom the school was built a hundred years before. He still liked Bach, as any good engineer should. It was likely that he would place a “For Sale” sign in front of the next new dormitory before it had a chance to be dedicated. He still leaned down to pet a stray puppy on campus. And, boy enough to reach the great world in his own unconventional way, he could still sometimes be seen vaulting the stone wall at the foot of Boynton Hill.
Among treasured traditions preserved at Worcester Tech—the student teacher relationship and the old drafting desks of the Civil Engineering Department.
Groundbreaking for Morgan Hall, left to right: Executive Vice-president Talman W. Van Arsdale, Jr., Charles W. Johnson (step-son of George I. Alden and chairman of Alden Trust), President Arthur B. Bronwell.

F. Harold Daniels

Chairman of the Board Philip M. Morgan, President Arthur B. Bronwell, Vice-president Francis W. Roys.
Olin Hall Dedication.
Procession at dedication of Olin Hall.
Allan E. Parker, head of department of Physics, is readily identified by his air of eagerness.

Olin Hall of Physics
Snowy day of President Storke’s inauguration, with five inches of October snow

President and Mrs. Storke greet guests at the Inaugural Reception
Reception after graduation exercises, 1964, in gardens of Jeppson House.
Board, 1963:
Left to right (seated): Morgan, Coghlin, Storke, Keith, Harrington, Krull; Left to right (standing): Hedberg, (deceased Nov. 1963), Smith, Counihan, Jones, Hanson, Alberti, Michel, Knight, Daniels, Fletcher, Torgersen, Marsh, McCutcheon, Brouwers, (Delphos missing)

President Storke and Chairman of the Board Wayne E. Keith

Wilmer L. Kranich, as if first learning of the proposed Chemistry and Chemical Engineering building, sketched on opposite page. This building and Olin Hall of Physics are both located on land given by the Higgins family.
Techniquest group: Wm. F. Trask (Director of Placement and Techniquest), Jerome W. Howe (Dean Emeritus and initiator of Techniquest), President Storke, Paul R. Swan (first Director), and Claude K. Scheifley (Director 1955-61)

Architect's sketch of Chemistry and Chemical Engineering building