The University and the Community

Carnegie Mellon and its Relationship to Pittsburgh 1900-2008

Jess Anders, Liz DeVleming, Vincent Giacalone, Evan Gross, Zhi Wei Leong, Ross MacConnell, Ellen Parkhurst, & Faryal Kahn

Instructor: Professor Joel A. Tarr

Course Assistants: Alex Bennett, James Dougherty

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This Report is dedicated to

Dr. Edwin Fenton

Professor Emeritus, Carnegie Mellon University

For his Contributions Towards Strengthening the Relationship Between Carnegie Mellon University and the Pittsburgh Community

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Introduction

"The University and the Community: Carnegie Mellon and its Relationship to Pittsburgh 1900-2008," was researched and prepared by the members of the History and Policy Seminar of the Department of History. The Seminar is the capstone course of the History & Policy track of the History major. This track is intended to teach undergraduates how to use the insights of history to shed light on the evolution of various societal problems and to help produce policy to deal with these problems. Students normally take the Seminar during the first semester of their senior year. The History & Policy track serves as a valuable major for students interested in preparation for law school and other professional fields as well as history teaching and research and public policy.

The idea for the theme of this seminar evolved in 2008 when the course instructor sat as a member of the committee examining the Regional Impact of the University, a subcommittee of the University Strategic Plan Committee. At this time I realized how little was known or articulated about the history of the University's regional impact and decided that it was an ideal subject for the History & Policy Project Course. Eight talented History & Policy seniors took the seminar and worked hard throughout the semester to produce an outstanding public presentation and this detailed report. In addition to their work, the two course assistants, Alex Bennett, a Ph.D. candidate in history, and Jimmy Dougherty, a senior History & Policy major who had taken the seminar the previous year, gave generously of their time and efforts. I wish to thank them and the student members of the Seminar for their hard work in making it a success.

Joel A. Tarr
Richard S. Caliguiri University Professor of History & Policy

The Development of a University

EVAN GROSS

ONE hundred years ago, Andrew Carnegie envisioned a technical trade school that would improve the quality of life for Pittsburgh's factory workers and their children. Today, that small technical school envisioned by Carnegie has become a globally acclaimed university with a student body consisting of students from over forty countries. The growth of the university, from its opening in 1905 to present day, has drastically altered the size and look of the campus. The expansion of the university has caused it to have an increased impact on the neighborhoods surrounding the campus. The growth of Carnegie Mellon has been beneficial to the surrounding communities, bringing bright young minds to Pittsburgh and helping out local business establishments but occasionally creating problems. The University, however, has taken a very proactive stance in addressing the needs and concerns of the university community and its place in the surrounding community.

This paper will track the growth of Carnegie Mellon from its inception as the Carnegie Technical School, starting with the construction of the initial Hornbostel academic quad and its opening in 1905. This beginning was followed by the development of the fledgling Carnegie Institute of Technology in 1912. The last projects of the original construction phase were completed in the 1920s. The next phase of construction and expansion that began in the 1960s will be looked at in the context of the new facilities built

and the failure of one of the most ambitious projects in Carnegie Mellon's history, the joint development of the Panther Hollow Research Park. Perhaps, the most drastic changes effecting Carnegie Mellon occurred in 1967 with the merger of Carnegie Tech with the Mellon Institute. The last large scale expansion of Carnegie Mellon's campus began in the 1980s with the East Campus project, which significantly altered the campus layout. The last section will look at the present interaction with the community, both positive and negative, and ways to improve interactions with the community.

On November 15 1900, Andrew Carnegie attended a Carnegie Institute board of trustees meeting in Pittsburgh and read a letter addressed to William Diehl, Mayor of Pittsburgh. In this communication, Andrew Carnegie stated his commitment to developing a technical school: "If the City of Pittsburgh will furnish a site, which I hope will be of ample size for future extensions, I shall be delighted to furnish the money for such a school, taking care to provide room for additions to the buildings to meet the certain growth of Pittsburgh."[i] Carnegie desired to build a technical school to improve the quality of workers in his and other Pittsburgh factories. He aimed to replicate the success of, "Armor, Drexel, Worcester, and Boston Institutes," in Pittsburgh, very ambitious desires to strive for by an entirely new entity. [ii] Within three months, the City of Pittsburgh accepted Carnegie's gracious offer and set about choosing a site to establish the future technical school. After debating the relative merits of various locations for over a year, on February 13, 1903, a site of thirty-two acres located next to Schenley Park was purchased for $350,000.[iii] As this purchase was being completed, Carnegie urged the city to purchase as much land as possible so that the institution would not have difficulty expanding in the future.[iv] Over the next two years planning for the opening of the school began, with the appointment of Arthur Hamerschlag to serve as the first President of the school and the selection of Henry Hornbostel to design and oversee the construction of the campus. The vision of these men was to create a school that would, "offer to the community and to the country a modern well balanced salient factor in their social and industrial development."[v] With the completion of Industries Hall in 1905, Carnegie Technical Schools welcomed students and faculty into its classrooms.

In 1900, the Carnegie Technical Schools' location, adjacent to Schenley Park between Oakland and Squirrel Hill, was drastically different from the one we see today. In Oakland, the Carnegie Institute was already operating the Carnegie Museum of National History, which had opened in 1896. In 1905, the University of Pittsburgh was still known as Western University of Pennsylvania and was located on the North Side; it was not until 1909 that it became the University of Pittsburgh and established its campus in Oakland. Beyond the other end of campus, Squirrel Hill was a developing residential neighborhood. Much of what is now east campus belonged to families that Carnegie Tech would buy out between 1915 and 1932. The only neighbor that has not materially changed in the past one hundred years is Schenley Park, part of the City Parks system.

In 1907, the Margaret Morrison College was completed, and women entered the Carnegie family of colleges. As new academic opportunities arose, President Hamerschlag expanded the Carnegie Technical Schools and soon began competing with other local colleges for faculty, students, and funding.[vi] By 1912, it became apparent to Hamerschlag that, to remain a viable institution of higher learning, the school would have to begin offering four-year degrees. Hamerschlag had difficulty recruiting top-notch faculty to a trade school because of their reluctance to join an institute that did not offer four-year degrees. While planning for the institution, Carnegie observed, "The real wants of Pittsburgh cannot be imagined, these have to be proved."[vii] This insight into the changing needs of a learning institution enabled Hamerschlag and his successors to change the Carnegie Technical Schools as new problems arose. To resolve these problems, Hamerschlag gained accreditation for four-year bachelor degrees, transforming Carnegie Technical Schools into Carnegie Institute of Technology.

Physical change in the school site followed. In 1912, it is probable that President Hamerschlag pushed for the expansion of Morewood Avenue through Tech's campus before terminating at Schenley Park, creating a more convenient access to Carnegie Tech for students, visitors, and the community. Hamerschlag was clearly interested in the proposed development of a new gateway to the campus from Morewood Avenue. Hamerschlag had one of his associates track the community's response to this proposal. Two editorials regarding this plan appeared in unidentified Pittsburgh papers in 1912

regarding this plan**.** In the first editorial, this new entrance was described as increasing access to the campus by bridging the ravine between the McGinley residence and Carnegie Tech, making Tech as accessible as the University of Pittsburgh for pedestrians. Additionally, this plan would construct a new gymnasium under the bridge, and the creation of an athletic field of comparable size to Forbes Field in the ravine. Lastly, this proposal would provide convenient access to Schenley Park and Flagpole Hill.[viii] In the second editorial's view, the expansions would benefit the University and the city at large, "the roof trusses to form the bridge while below in the same areas there is to be a student restaurant, gymnasium, swimming pool, and club rooms….. but it will also furnish a new and more convenient entrance into Schenley Park."[ix] These two editorials show that Tech and the community were working together to improve the campus and neighborhood for future generations. Ultimately, this plan failed, due to insufficient support from the city government to purchase the four-acre McGinley property that was needed to expand Morewood Ave. to Frew Street.

During the second decade of its existence, Carnegie Tech began to develop a more diverse student body. The original academic quad planned by Hornbostel became a reality as Engineering and Science Hall, Machinery Hall, the School of Applied Design, and Administration Hall were all finished. The construction that took place on campus allowed the institution to fill the valley between the campus and Forbes Avenue, eliminating the need for an extension of Morewood Avenue to the campus. With the completion of these buildings, enrollment at the Institute expanded rapidly

In 1917, with the outbreak of World War One imminent, the college offered its facilities to the government, causing Tech to temporarily change its objectives. During the war, over 8,000 recruits came to campus to take war courses; they were trained in skills in everything from airplane rigging to becoming band-masters and from radio operators to ammunition inspectors.[x] Campus dormitories were unable to provide enough housing and dining facilities for the influx of soldiers coming to campus for these training programs. The influx of people to campus resulted in the construction of additional dormitories and the building of Langley Aeronautical Laboratory as a dining facility for the enlisted men. Yet,

these additional facilities still failed to house all of the enlisted men training on campus and some of them were forced to live in the surrounding communities.

In 1919, with Andrew Carnegie's death, the funding for the college, which Hamerschlag had previously been able to access with ease, slowly began to dry up. The institution had to become self sufficient or risk depleting the endowment. As Hamerschlag attempted to gain additional funding, he was rebuffed by the Carnegie Corporation., which stipulated that the school needed to restructure itself according to suggestions of a 1921 Survey Commission. Among the suggestions from this commission was the proposal that Carnegie Tech work in harmony with the University of Pittsburgh. This commission rebuked the progress Hamerschlag had made in making Carnegie Tech a nationally acclaimed institution, saying that, "it has been so rapid and so unexpected that it has outrun the comprehension and sympathy of the local public".[xi] While the institution was growing in prestige, it seemed to have forgotten its original purpose of helping the children of Pittsburgh receive a high quality education, alienating the neighboring communities. This estrangement seems to have occurred as Hamerschlag strived to make Carnegie Tech a stronger and more competitive institution, while overlooking the original intention for the creation of the college.

After eighteen years of overseeing the birth and development of the Carnegie Institute of Technology, President Hamerschlag resigned in 1922. His replacement, Thomas Baker, was elevated from the position of Hamerschlag's vice president. Baker inherited a campus of attractive buildings but rudimentary landscaping, pathways, and fine edges remained outdated. Baker oversaw the last original Hornbostel construction project, the building of a gymnasium across the street from Margaret Morrison College, finally giving the student body an athletic facility. Instead of constructing more buildings on campus, Baker focused on refining the campus, making it more beautiful and smoothing the rough edges left by twenty years of non-stop building.

During this period one of the most iconic features of Carnegie Tech's campus was first built: in 1923, the senior class erected the first fence, providing a congregating area for seniors to watch the women of Margaret Morrison come and go. Another campus tradition began during this period, Carnegie Tech's Spring Carnival. Carnegie's Tech Spring Carnival

would turn out to be a great vehicle for interaction between the institution and the community.

In 1926, Carnegie Tech Dean Samuel Church testified to Congress about drunkenness and the effects of prohibition on a college campus. In his testimony, Dean Church implied that "drunkenness and other evils existed universally among students."[xii] By neglecting to leave out Carnegie Tech, he incurred the anger of the student body who felt that they had been wronged. While the college made strides in improving aspects of student life increasing with size of the student body. In 1928, the administration and Greek students clashed over complaints by neighbors about noise from fraternities and illicit drinking. Even in the midst of prohibition drinking in college continued. The nineteen fraternities at Carnegie Tech were a very active portion of the student body; almost a third of day-time male students were Greek, living in privately owned houses around the neighboring community.[xiii]Other students living on campus either lived in campus dormitories on the Hill across from Woodlawn Avenue, in campus-owned renovated houses along Forbes Avenue.

During Baker's presidency, Andrew William Mellon, head of the Mellon clan, announced his intentions to launch an institute of applied science, to separate his institution from the University of Pittsburgh, creating a new institution, dashing the hopes that Carnegie Tech possibly entertained of obtaining this institution. The Mellon Institute would be founded across the street from the University of Pittsburgh's Cathedral of Learning, creating a third learning institution in the Oakland area. When the Mellon Institution opened in 1937, it was one of the most advanced research facilities in the United States.

In 1935, while the country was in the midst of the Great Depression, President Baker resigned, and the board of trustees appointed Robert Doherty as his successor. President Doherty was a newcomer to Carnegie Tech and chose to study its operations before trying to reform it. A firm believer in transparency, Doherty chose to make his reports public so that the community and concerned parties could see changes in the university over the next few years. Doherty's reports regarding the future called for a reduction in the amount of class time students and faculty had, in order to allow for

students to get more out of their education than simply book knowledge. Even faced with uncertain financial times, Doherty oversaw the renovation of the original core academic buildings, the purchase of Morewood Gardens in 1946, a large apartment building at the corner of Forbes and Morewood, and the purchase the last remaining private lands between Woodlawn, Frew, and Forbes Avenue.[xiv]

With the outbreak of World War Two in 1939, Carnegie Tech again opened its doors to the government for military training. While not used as a military base as it was during World War One, the institution offered classes about the military sciences to the community. When World War Two ended, the federal government enacted the GI Bill, which led to a boom in undergraduate enrollment. Facing a growing number of students on Carnegie Tech's campus, Doherty began to implement fundamental changes to the structure of the Institute. In 1945, Doherty initiated the Carnegie Plan, which reshaped the structure of the university, incorporating the humanities and social sciences more fully into the curriculum than his predecessors had.

President Doherty, realizing the benefits of having a good working relationship with the powerful Mellons, sought opportunities to work with the Mellon family. Doherty and Richard King Mellon helped start the Alleghany Conference on Community Development, which was the leading force behind the Pittsburgh Renaissance. Doherty also worked with William Larimer Mellon to form a school that became known as of the Graduate School of Industrial Administration.[xv] These preliminary steps built the foundation for a cooperative relationship between Carnegie Institute of Technology and the Mellon Institute.

In 1949, President Doherty announced his intention to resign at the end of the year, beginning a search for his eventual replacement. The board of trustees proceeded to appoint the Dean of Graduate Studies, John Warner, as President. Warner inherited a campus that was in dire need of new facilities to cope with the growing student body and their new demands. Over the rest of his administration, Warner attempted to strengthen the lagging endowment fund in order to expand the campus. Based on three committee reports produced in 1952, 1954, and 1955, Warner was able to estimate the necessary amount of funds to enable the continued growth of Carnegie Tech.[xvi] Over the next 10 years, the institution raised over $20 million dollars, which, along with generous contributions

from the Scaife and Hunt families, would finance the second wave of campus expansion. Warner would oversee the planning and initial construction of Donner House, Warner Hall and Scaife Hall, the Hunt Library, and the Skibo student center.

In 1960, Skibo, the new student center, opened, replacing the outdated Langley Aeronautic lab. With Langley now outdated, the college built Hunt Library in its place, using funds from the Aluminum Company of America, finally giving the students at Carnegie Tech a library on campus. As part of its funding, the Hunt family stipulated that the green space known as the 'cut' would remain undeveloped for the next century. With all the new buildings on campus, the institution decided to rename the original buildings in the academic quad, naming them after the presidents Baker, Doherty, and Hamerschlag. The new buildings provided a stark contrast to the Hornbostel era buildings. Compared to the classic brick façade of the older buildings, these new building were very modern with their steel supports and extensive incorporation of glass. Hunt's inclusion in this second period of building is part of campus folklore as the Hunt family mocking Carnegie and his steel empire, with the construction of an aluminum library at a steel magnate's college.

During Warner's tenure, Carnegie Tech joined with the University of Pittsburgh, the Mellon Institute, the Catholic Institute of the Diocese of Pittsburgh, Mercy College, and the Carnegie Institute to create the Oakland Corporation, spurred by the efforts of Pitt's Chancellor Edward Litchfield. The Oakland Corporation was the driving force in the planning of a massive research park that would fill in Junction and Panther Hollows. The initial plan, made public in April 1963 by architect Max Abramovitz, involved covering the train tracks in Panther Hollow, building a new highway running adjacent to the train tracks, and constructing a massive building above them.[xvii] Billed as part of phase two of the Pittsburgh Renaissance, this $250 million research center would have provided ten million square feet of useable space for the community and the neighboring colleges.[xviii] In addition to providing new research facilities for the colleges, this project would also provide theaters, terraces, parking spaces, and restaurants for public use.

The initial plan was overly ambitious, however, leading to a scaled back final plan, making it a more plausible size that would have less of an impact on the existing community. The final plan called for development only in the area between Forbes Avenue

and Schenley Drive, and did not include the filling in of Panther Hollow, but rather building on one side of the Hollow. This plan drastically reduced the scope of the project, bringing down the total square footage to 859,740 feet.[xix] As the Oakland Corporation explored funding opportunities, the driving forces behind the Panther Hollow project slowed as each institute focused on its own development. For a variety of reasons, primarily a lack of funding, Abramovitz's plans failed and the alliance between Carnegie Tech, Mellon Institute, and the University of Pittsburgh faltered. Baker, however, continued to explore potential opportunities for Tech to expand. In April 1965, for example, the board of trustees looked into the possible purchase of the Bureau of Mines. While they thought such a purchase would be a wise investment, they realized that they needed to see what would become of the Panther Hollow Research plan before moving forward with an attempt to purchase the Bureau of Mines property.[xx] While Carnegie Tech and the University of Pittsburgh continued to explore expansion opportunities into Panther Hollow, no successful venture arose out of the Oakland Corporation's planning.

As Baker reached the mandatory retirement age, the university began a search for his replacement. Ultimately, Carnegie Tech chose Horton "Guy" Stever from the Massachusetts Institute of Technology to be the fifth President of Carnegie Tech. Stever inherited a handful of unfinished construction projects initiated by the Baker administration. Less than a year into his presidency, Stever was presented with a unique opportunity. The Mellon Institute, long a non-profit research institution, sought to merge with one of its larger neighbors. The University of Pittsburgh had had a relationship with the Mellon Institute from 1913 to 1927, but that relationship had become problematic, and the Mellons grew increasingly closer to Carnegie Tech.

On September 15, 1966, the merger between the Mellon Institute and Carnegie Tech was announced. The resulting university was named Carnegie Mellon University and instantly became one of the larger research facilities in the country, with a strong endowment.[xxi] Describing the situation leading up to the merger, President Stever said, "Co-operation can only come between two strong groups never between two weak ones or between a strong and a weak one."[xxii] This merger also had profound effects in the relationship between Carnegie Mellon and the University of Pittsburgh. The expansion of

Carnegie Tech into Oakland would cause the twouniversities to have minimal interactions over the next twenty years.

The emergence of Carnegie Mellon University led to a shift in the composition of the individual schools within the university. In November 1969, after only forty-one freshman enrolled in the Margaret Morrison College, Stever and the board of trustees decided to close the women's college.[xxiii] In its place, the University started the New College, later renamed the College of Humanities and Social Sciences, to provide a liberal arts education like other major universities. In addition, the Mellon Foundation provided a $10 million contribution to create the Graduate School of Urban and Public Affairs. In 1971, Stever also oversaw the completion of the academic quadrangle planned by Hornbostel many years before with the completion of Wean Hall. Unlike previous construction projects which had been conducted without difficulties, the lack of minority workers, specifically African Americans, drew the ire of the Black Construction Coalition, a portion of the student body, and some faculty.[xxiv]

While Carnegie Mellon's campus was not as large or as liberal as other campuses, there were still protests over issues such as racial equality. The administration and faculty were concerned that these protests might spread into the adjacent communities disrupting the university's neighbors. Some of the more notable campus protests included: the shutting down of the construction of Wean Hall, throwing Marshmallows at Senator Strom Thurmond, occupation of Warner Hall, trashing the ROTC building, and releasing an inflammatory article about the Mellon family prompting their resignation from the board of trustees. Stever's stance on student demonstrations is reflected in a letter he issued on September 5, 1969:

1. The protest or demonstration must be an orderly nature so that no acts of violence shall occur and the normal orderly operation of the University will not be impeded.

2. The protest or demonstration shall not infringe upon the rights or privileges of students not in sympathy with it. Thus, all students are assured that the ideas or desires of others shall not be inflicted upon that and that they will be allowed to exercise the right of free choice

3. Finally, the freedom to demonstrate on the campus shall be limited to members of the campus community only.[xxv]

Stever allowed the students to express their views regarding integration of public schools, the Vietnam War, and other social-economic issues, without calling in the police or the National Guard, actions that had only made situations worse at other college campuses.

Another problem that the university had to confront was a shortage of housing options for students. This problem was partially resolved by the donation by the Mudge family of their house located on Morewood and Fifth. After receiving Mudge House, the university sought to increase its housing capacity by building two additional wings, the first in 1959 and the second in 1966, which added two hundred and fifty beds to campus.[xxvi] The university continued by constructing additional new dormitories along Forbes Avenue, including the Doherty Apartments, completed in 1958 and the completion of the Fraternity Quad in 1968.

In November 1972, President Nixon nominated Stever for the position of the director of the National Science Foundation and Stever resigned four months later. The University Board of Trustees named Richard Cyert, the Dean of the Graduate School of Industrial Administration, as his replacement. Cyert inherited a university, strong in certain aspects but also with severe shortcomings. The biggest issues confronting Carnegie Mellon were overcoming its reputation as a regional tech school and increasing its contributions to the surrounding communities and counties.[xxvii] Over the first ten years of Cyert's administration, he worked to address the internal problems within the University. By the mid-1980s, Cyert initiated the third major development period in Carnegie Mellon's history. These efforts began with the construction of the University Computer Center, later renamed Cyert Hall, providing facilities for the developing campus computer network.

In 1985, Cyert commissioned CRS Sirrine, an architecture firm, to develop a new campus master plan, replacing the outdated 1968 master plan. Their plan focused on developing: "a Campus image of quality, innovation, vitality, and warmth; project an image as a TOTAL university not just a 'high' tech center; to enhance CMU's position as a major research center; and to elevate the campus facilities to the level of quality of students and

faculty."[xxviii] The CRS plan called for the purchase and renovation of the U.S. Bureau of Mines, the last non-CMU property in the Forbes- Frew-Margaret Morrison sector. In this plan, a new Science and Engineering building would replace the Navy Training Center/Student Union while the Bureau of Mines buildings C & D would be remodeled; there would be construction of new parking and lab facilities. The limited scope of the CRS plan proved to be its undoing, as it inadequately addressed the issues regarding parking, student housing, and dining facilities.[xxix]

Following the failure of the CRS Plan, the university held a contest to address the issues of student housing and parking facilities. Architects working on developing a new look for the campus encountered difficulties. Carnegie Mellon planners found that there were no open areas for expansion as there had been in the 1920s and 1930s. Since there was no undeveloped campus land, the only possibility for these additional buildings would be to alter existing campus buildings. Cyert and the board of trustees, selected the plan of Dennis, Clark, & Associates.

The Dennis and Clark plan focused on a redesign of the eastern portion of campus, beginning with the rotation of the football field ninety degrees to reduce wasted campus space. The East Campus Project called for the construction of two new dormitories with dinning facilities on the first floor, a new parking garage located on Forbes Avenue, replacing Skibo with a newer and larger University Center, an addition to Margaret Morrison, a new intramural sports field, and a new building for the school of drama across the 'cut' from the new University center to improve the artistic hegemony of the campus overlooked during the 2nd wave of construction. The University, aware that its neighbors might be upset with this massive construction project, sent newsletters to the community every few months. The majority of neighborhood concerns focused on the placement and construction of the new parking garage. The university had open discussions with Squirrel Hill and Oakland community leaders, starting as early as the planning stage, to try to address as many concerns as possible and to explain their solutions. The questions raised by the community included, "Why is the parking garage located where it is?"[xxx] "Why didn't you plan the garage below grade so that it will be even less conspicuous?", and "Will the new garage cause more traffic congestion as more cars line up along Forbes to park in this

one area?"[xxxi] The University responded to each question with well reasoned responses. For example, the university's response to concerns about the location of the entrance to the structure and its impact on traffic patterns was to state that "There are no gates near the street entrances, and car will not have to line up on Forbes or Beeler in order to enter the garage."[xxxii] The new parking garage would be an improvement over the existing situation in all aspects.

The university also took this opportunity to expand its influence in Oakland. In the early 1980s, Carnegie Mellon began planning and building the Software Engineering Institute across the street from the Mellon institute. This move signaled that future expansion might attempt to link the two campuses. Quickly emerging as a world leader, the School of Computer Science was able to exert more power at Carnegie Mellon in the constant battle for funding and better facilities. While the developments on campus garnered more publicity, this move off campus expanded the scope of future campus development projects. However, the community began worrying about the future of the area between main campus and the Oakland portion of campus.

In 1989, before the entire plan could be realized, Richard Cyert announced his intention to resign at the end of the year. The board of trustees selected Robert Mehrabian to become the sixth president of Carnegie Mellon. Mehrabian inherited a growing campus shaped by an overall plan. It had maintained good relations with its neighbors, but the university had some major problems that Mehrabian needed to address. Picking up the reigns of the campus plan, Mehrabian oversaw the finishing touches on the East Campus project, which was completed in 1991 with the dedication of Gesling Stadium, the new football field.

Mehrabian spent most of his time completing Cyert's plans, increasing campus facility space by twenty-seven percent.[xxxiii] Merhabian increased the available campus space through additions, by adding a new attachment to the Graduate School of Industrial Administration's Posner Hall, completed in 1993, in 1996, with the completion of the University Center and the attachment of Roberts Engineering Hall to Hamerschlag Hall; the development of the Intelligent Workplace on top of Margaret Morrison; and, in 1997, the beginning of the Purnell Center of the Arts. Additionally, the University also struck a deal

with the NROTC program, obtaining their building and moving their offices down Forbes to a leased building. Completed in 1996, the new University Center added another landmark to campus. The accessibility and size of the University Center enabled it to serve as a meeting place for the University and the community. Since its opening, the University Center has hosted numerous academic, social, and community events, such as job fairs, conferences for inner-city economic development groups, and chess tournaments for Pittsburgh's youth.

Mehrabian realized that the University needed to expand its role in the region and the community. The result of the university's redefinition of its role is evident in the 1990 Strategic Plan. It stated basic objectives and goals for the University and for its involvement with Western Pennsylvania. As a result of the Strategic Plan, Mehrabian pushed faculty and students to become involved in the greater community, finding twenty-five projects that connected the University with students from other local schools.[xxxiv] Mehrabian also made sure that members in the neighboring communities were aware of important events at Carnegie Mellon. Another example of Carnegie Mellon University's commitment to the community occurred when the university began managing the Schenley Park Golf Course in 1993 to ensure that the course remained open. While this project kept the golf course open and its fees reasonable, the university has not gained much for its management.

In 1996, President Mehrabian announced his retirement. On April 15, 1997, the former dean of the School of Forestry and Environment Studies at Yale, Jared Cohon, became Carnegie Mellon's seventh president. Cohon first completed the projects left from Mehrabian's administration, before embarking on his own plan. These projects included the completion of the Purnell Center of Arts in 2000 and the renovation of the Bureau of Mines Buildings C and D into Newell-Simon Hall, a center for robotics research, also completed in 2000. The completion of these last two structures ended the third wave of campus building, completing the last visions of Cyert's administration.

His predecessor's plans finished, Cohon began to make his own imprint on the University. He started by making the administration more accessible to the students, so that it could be more responsive to the needs and wants of the student body. In addition to being more accessible, Cohon wanted the university to be more competitive with its peer

institutions. Cohon conducted research, which found that the university was being outperformed across the board; he found it especially striking that it had one of the lowest endowments in its study group.[xxxv] During this stage that Cohon formed a committee to develop a new campus master plan for the next century. The committee started to develop the plan in 1999 and the city approved it in 2002. The new plan focused on improving the West Campus and the Morewood precincts and acquiring property to develop additional facilities as future needs dictated.[xxxvi] The 2002 campus master plan proposed twenty-seven unique projects for the university. The biggest proposed change was the development of the Morewood Parking lot into a new dormitory, a new academic/administration building, and a new intramural field. Another highlight from this proposal was the redesign of the Greek Quad and the construction of additional Greek housing in place of the Roselawn houses.

Since its approval, the 2002 campus master plan has driven development of the University. The first proposal was the construction of a new dormitory between Mudge and Morewood. As with previous dormitory projects, the desire to have more students live on campus was the driving force. During the planning the University decided to undertake Leadership in Energy and Environmental Design (LEED) certification for the new dormitory. The new dormitory, named Stever House in 2008, was the first LEED certified dormitory in the country.[xxxvii] The decision to spend extra money to comply with LEED standards established Carnegie Mellon as a leader in the effort to develop and build green buildings within Western Pennsylvania and the country. This would be manifest on campus as other projects designed by the school would be expected to achieve LEED certification as Carnegie Mellon tried to set an example for others to follow. Outside of concerns by residents living on Devonshire Road that the height of the new dormitory would block out sunlight, this project was well received.

In an attempt to attract more technology firms to Pittsburgh, Carnegie Mellon decided to construct an office building for their use. The Collaborative Innovation Center, completed in 2005, has attracted companies to Pittsburgh and created jobs for graduates. The last major development to occur on-campus, which also arose out of the 2002 Campus Master Plan, was the new Gates Center for Computer Science and the adjoining Hillman

Center for Future Generation Technology. Originally planned as a replacement for the old Department of the Navy/ Old Student Union, this complex will be much larger than originally planned due to a large donation by Bill Gates. The complex is being built for the School of Computer Science and will aid the department in maintaining a world-class reputation. The increased size of this project has complicated the planning for this building and the Bellefield Area Coalition raised concerns about the traffic impact on Forbes Ave. and Boundary Street by the new complex.[xxxviii] The ability of the University to alleviate such concerns by conducting a traffic study illustrates the desire of Carnegie Mellon to maintain good relationships with its neighbors. Also, the University was able to show that the very modern looking Gates Center would not harm the ambiance of the campus.

More recently, two community concerns have arose regarding university expansion on Craig Street and increasing numbers of students living off campus in residential communities. As the administrative functions of the university grew in the early 1980s, Carnegie Mellon began acquiring or renting property around Craig Street and moving the less student-oriented offices into these buildings. With the influx of more and more Carnegie Mellon personnel into the Craig Street area and as the number of properties tied to the University grew, community leaders worried about the future of Craig Street. A line in the 2002 master plan, "one can envision more of a mini-Harvard Square atmosphere in the Forbes/Craig area… more of the college town quality which Craig Street has long had potential" aroused their concerns[xxxix] increasing tensions between existing merchants along Craig Street, their community supporters, and the institution.

The University has worked hard to placate these concerns by working with local merchants and on proposed properties developing around Craig Street, such as the Rand Building and the 300 South Craig Street Building, providing space for street-level businesses. Additionally, the talk of creating a Harvard Square atmosphere along Craig Street has tapered off. These actions on the part of the University have helped somewhat; however, there is still apprehension among some Craig Street merchants. One store owner commented to the *City Paper*, "We are competing with CMU… Once they control everything, they will determine who they want and who they don't want."[xl] Thus, despite taking numerous steps to build and maintain good relations with the Craig Street merchants,

there is still a distrust of the university's intentions among many business leaders. The University will need to find a way to alleviate these concerns to maintain good relations with the community.

The other issue endangering Carnegie Mellon's relationship with its neighbors is the role of students who do not live on campus. The number of spaces in on-campus dorms has long been an issue at Carnegie Mellon. Recently, to address this matter, the university has entered into housing contracts with a number of large apartment buildings, like Webster Apartments, Fairfax Apartments, and Cathedral Mansions, in Oakland to help handle some of surplus. Many students still opt out of university housing and elect to live in Oakland, Squirrel Hill, Shadyside, or elsewhere in the city. The community associations often express concern about the ever-growing number of students living in residential areas, claiming they do not take care of property to the extent that a typical family would. Additionally, they bemoan the tendency for college students to have house parties, which result in noise complaints and complaints about drunkenness.

Students like living off campus. A student living on Beeler Street cited benefits such as students being able to cook for themselves, design their own living space, have pets, and have parties on the weekends.[xli] The conflict between families and students occur most often along Beeler Street where Carnegie Mellon students have rented for years, resulting in numerous noise complaints as a result of frequent house parties. This fall, residents of Beeler Street took their objections to the city zoning board, which has an ordinance restricting the number of unrelated people who can live in a house, having significant effects on students, who may exceed the legal number of roommates to keep costs down. While the city is still looking into these complaints, the university has stated its commitment to its students should they be evicted, possibly providing temporary housing for those displaced.[xlii]

From its beginnings as a small regional trade school, Carnegie Mellon University has become a world class institution of higher learning. The hard work of the university to keep the community abreast of its development plans has, for the most part, garnered the good will of the community and established a strong and functional working relationship. As Carnegie Mellon continues to expand and further develop its campus, it has laid a strong

foundation. However, every new development plan raises new concerns for community leaders. The first future problem that the Carnegie Mellon administration will have to deal with is the planned development of the Morewood parking lot - how will it be developed, what kind of buildings will be constructed there, and what will happen to the parking spots that would be lost. Another problem that will need to be addressed concerns the increasing demand for parking spots on campus and where future parking facilities can be built without negatively affecting the community. A third potential problem is how to improve the safety of pedestrian crossings around campus without causing traffic nightmares. The last problem that the University faces is where it will build when it again decides to expand. The campus is enclosed by Squirrel Hill, Shadyside, and Schenley Park, leaving Oakland as the only option. Expanding campus further in Oakland without destroying relationships with the Bellefield Area Citizens Association will be a critical challenge.

[i] Arthur Wilson Tarbell, *The Story of Carnegie Tech: Being a History of Carnegie Institute of Technology from 1900 to 1935* (Pittsburgh: Carnegie Institute of Technology, 1937), 23.
[ii] Ibid., 23.
[iii] Ibid., 25.
[iv] Rives Trau Taylor, "The American College and Its Architecture: An Institutional Imperative - Hornbostel and Carnegie Tech" (M.S. Thesis, Massachusetts Institute of Technology, 1988), 117.

[v] Ibid., 117-118.
[vi] Edwin Fenton, *Carnegie Mellon 1900-2000: A Centennial History* (Pittsburgh: Carnegie Mellon University Press, 2000), 29.
[vii] Rives Trau Taylor, "The American College and Its Architecture," 122.
[viii] Carnegie Mellon University Architecture Archives, "A Real Civic Center," c.a. August 8, 1912.
[ix] Carnegie Mellon University Architecture Archives, "The New Entrance to Schenley Park Planned," c.a. August 8, 1912.
[x] Arthur Wilson Tarbell, *The Story of Carnegie Tech*, 65.
[xi] Fenton, *Carnegie Mellon 1900-2000: A Centennial History*, 33.
[xii] *Time Magazine*, "Nothing Can Rectify," May 3, 1926, http://www.time.com/time/magazine/article/0,9171,721985,00.html.
[xiii] Fenton, *Carnegie Mellon 1900-2000: A Centennial History*, 80.
[xiv] Ibid., 100.
[xv] Ibid., 102.
[xvi] Ibid., 152
[xvii] Herbert G. Stein, "Panther Hollow Plan Unveiled," *Pittsburgh Post-Gazette*, June 9, 1963
[xviii] *Time Magazine*, "Renaissance, Phase 2," June 21, 1963, http://www.time.com/time/magazine/article/0,9171,874908-2,00.html.
[xix] Oakland Corporation Economic Study of Panther Hollow Stage 1 – Phase 1 March 1964.
[xx]Carnegie Mellon University Archives, Executive Committee meeting minutes 1964-1965, April 25th 1965, 99.
[xxi]*Time Magazine*, "New U. at Carnegie Tech," September 23, 1966.
[xxii] Herbert G. Stein, "New Carnegie University to Emerge Here," *Pittsburgh Post-Gazette*, September 15, 1966.
[xxiii] Fenton, *Carnegie Mellon 1900-2000: A Centennial History*, 162-163
[xxiv] Ibid., 168
[xxv] Ibid., 169.
[xxvi] Carnegie Mellon Housing, "Mudge House–About," Carnegie Mellon University, http://www.andrew.cmu.edu/org/mudgehouse/about/a_tower.php.html.
[xxvii] Fenton, *Carnegie Mellon 1900-2000: A Centennial History,* 194-195
[xxviii] CRS Sirrine Inc., "Carnegie Mellon – Junction Hollow Planning Study," (Pittsburgh, 1984), 5.
[xxix] Fenton, *Carnegie Mellon 1900-2000: A Centennial History*, 211.
[xxx] Frederick Rogers, Good Neighbors Carnegie Mellon April 1988.
[xxxi] Frederick Rogers, Good Neighbors Carnegie Mellon July 1988.
[xxxii] Ibid
[xxxiii]Fenton, *Carnegie Mellon 1900-2000: A Centennial History*, 249.
[xxxiv] Ibid., 257.
[xxxv] Ibid.,, 268.
[xxxvi] Carnegie Mellon University, "Campus Master Plan," (Pittsburgh, 2002), 1, www.cmu.edu/ira/Carnegie_Mellon_Campus_Plan.pdf
[xxxvii] Carnegie Mellon Green Practices, "New House LEED Certification," http://www.cmu.edu/greenpractices/green_initiatives/new_house.html.
[xxxviii] "CMU Gate Center" Bellefield Area Citizens Association BACA News Volume 1, issue 8 October 2006.
[xxxix] Carnegie Mellon University, "Campus Master Plan," 14.
[xl] Marty Levine, "Classroom Crowding," *Pittsburgh City Paper*, August 21, 2008.
[xli] Fenton, *Carnegie Mellon 1900-2000: A Centennial History*, 281.
[xlii] Stuti Pandey, "Residences on Beeler Street Put Under Law Scrutiny," *The Tartan*, October 13, 2008.

The Women of Carnegie

JESS ANDERS

MARGARET Morrison Carnegie College was an important part of the greater Carnegie campus, and of the city of Pittsburgh. Students and graduates alike shaped their experiences with service to those who needed it. The women from Margaret Morrison, now greater Carnegie Mellon, have continuously remained an important part of the campus and community. Organizations and clubs have continued to support both community and campus, alike. This chapter focuses on the Margaret Morrison legacy of service through its closure in 1973. However, the legacy of the Margaret Morrison women extends beyond the school itself. Women at Carnegie Mellon University have continued to be a vital part of a growing community, both on campus and in Western Pennsylvania. This chapter seeks to identify both legacies, and describe their contributions and connections to each other.

In 1895, Andrew Carnegie donated $2 million to the city of Pittsburgh to establish Carnegie Technical Institute and Margaret Morrison Carnegie College.[xliii] Designed to be schools devoted to trade education for the citizens of Pittsburgh, both Margaret Morrison and Carnegie Technical Institute would surpass the expectations of students and founder alike. Carnegie's desire to give back to the community was established before the Tech schools had been founded. But Andrew Carnegie wanted to provide his city with something more endearing that could benefit both the citizens and the community. Referring to his gift

establishing the schools, Andrew Carnegie noted that, "In Pittsburgh I had made my fortune and in twenty-four millions already spent on this group, she gets back only a small part of what she gave, and to which she is richly entitled."[xliv] So, in addition to providing the financial support to build the technical school in Pittsburgh, Carnegie was thrilled to provide the women of Pittsburgh a unique, but important educational opportunity by establishing Margaret Morrison.

In addition to Margaret Morrison, aptly named after his mother, three other schools made up the Carnegie Institute of Technology, including the School of Science and Technology, the School of Fine and Applied Arts, and the School for Apprentices and Journeymen.[xlv]But Margaret Morrison stood out on the Tech Campus, primarily because it was a women's school. Together with Tech, Margaret Morrison has contributed to collaborative efforts in the city. Unlike Tech, however, Margaret Morrison also challenged the foundations of women in education, providing both trade and liberal educations to establish that the women of Margaret Morrison were a vital and vibrant part of the history of Carnegie Mellon, providing women of all ages an opportunity to continue or further their educations.

The Margaret Morrison women can be summed up in the inscription inscribed in the early 1900s into the rotunda of the beautiful Margaret Morrison building. The inscription serves as a reminder today of life for women in education at an earlier time, but also as inspiration for their legacy: "*To make and inspire the home, To lessen suffering and increase happiness, To aid mankind in its upward struggles, To ennoble and adorn life's work, However humble, These are the women's high prerogatives."*[xlvi]Indeed, the Margaret Morrison School lived up to the inscription through philanthropy in the community, and continued service even after graduation. Organizations devoted to "lessening the suffering" in Pittsburgh were an important part of life until the 1940s, when the school and more social organizations took the challenge over. Nonetheless, the women of Margaret Morrison have continued to "aid mankind in its upward struggles."

Margaret Morrison Carnegie College (MMCC) began offering classes to the first day students on September 17, 1906; classes for night students commenced on October 8, 1906.[xlvii] The day students were mainly high school graduates, while the night school

students were generally younger women who either had not graduated from high school, or held jobs outside of their homes.[xlviii] Many women commuted to school from their homes since the student body was comprised of mostly Pittsburgh residents in the early years, while others moved closer to the area or rented rooms.[xlix] Women from all counties and cities, including Allegheny, Beaver, and surrounding Ohio cities, came to Carnegie Tech to learn trades, and pass time until they either married or graduated. Students attending MMCC paid $30 a semester for day school classes and $7 for night school course work. Students of the Women's College were originally intended to be training for trades just as their male counterparts at the Tech school.[l]

However, the MMCC established programs that were more educational and liberal arts in nature, including majors in such fields as the sciences, history, and English. Social work also was a popular major for many students. Women who attended the day school generally graduated in two years, studying such topicsas home economics, social work, millinery, and dressmaking. Women attending the night school studied stenography, type work, and dressmaking and graduated in four years.[li]All of the skills learned at Margaret Morrison enabled the women who graduated to work outside the home as secretaries, teachers, and social workers, many of the jobs that were deemed appropriate for women at the time. No doubt many Margaret Morrison graduates secured jobs in the growing corporate headquarters located in downtown Pittsburgh. Graduates of Margaret Morrison worked at West Penn Hospital as nurses or social workers, while others continued in education with the school district. Some women also worked as producers, principals, and professors, and by the 1960s, graduates of Margaret Morrison were filling a variety of positions in Pittsburgh.

The fact that many programs were short lived reflects the shifting roles of women outside of the home. In 1930, for instance, Margaret Morrison developed a nursing program in collaboration with West Penn Hospital, which took four years to complete. The programs first and fourth years were spent at Margaret Morrison, and the second and third years in a residency program at West Penn. By 1940, however, the program had been phased out due to decreased demand.[lii] Both the University of Pittsburgh, and other neighboring schools provided similar programs at a lower cost, and women often chose

them as places for their education. Still, women from across Pittsburgh and the surrounding region continued to attend Margaret Morrison, whether for prestige or convenience. Eventually, the school came to rival similar schools in the United Statesand became revered for its pedagogy and successes in education.[liii]

Margaret Morrison gave students more than just an education in their selected fields. The history of Margaret Morrison reveals the beginning of a radical new education for women in Pittsburgh, and eventually, from around the country. From the first day of classes, the school was a changing force; women remolded the idea of education, and eventually pushed for co-education by the 1960s.[liv] Many women in MMCC felt that being in a women's school had given them the leadership abilities they needed in the real world, while also allowing them to discover their strengths.[lv] Many women who graduated from Margaret Morrison often went to the work in Pittsburgh, and have contributed over the years to countless improvements and volunteer hours to help those in need.

The history of Margaret Morrison shifted suddenly in the late 1960s when the enrollments in the women's school rapidly decreased due to competition from other schools with similar programs.Women considering higher education were increasingly interested in liberal arts educations. To accommodate the new trends, the administration could focus their energies onthe development of better research programs. On the other hand, they could provide more incentives or develop new programs for students and faculty alike. Finally, they could merge the women's school with that of the greater university. The integration proposal was controversial on campus. For many, integration of MMCC into the greater university was seen as a step forward, and for others it was seen as destroying a legacy created by Carnegie. Alumni of Margaret Morrison were furious that they had not been consulted on the fate of their women's school, but their disapproval had little effect. Dean Erwin Steinberg was one of the first ones to propose the integration of the women's school into the larger university, and in a memorandum to the Vice President Edward Schatz, noted that "We have now reached the point where class sized in the professional options are so small as to make these options an economic burden to the university."[lvi] Dean Steinberg saw the need for change, and while it was met with resistance, it ultimately became a defining force in the university.

Indeed, enrollment had declined at MMCC because many local schools in the surrounding regions began offering similar programs at much lower tuition rates. Tech's administration noticed that Maggie Murphs were primarily enrolled in liberal studies and sciences. The new direction of women's education was arts and humanities, while the technical majors, including stenography or dress making, had become obsolete. Edwin Fenton, in his history of Margaret Morrison, notes that without administrative support, faculty interest in research, and increased enrollment, the school was doomed.[lvii] With death of the separate woman's college fast approaching, the administration at MMCC and Tech had to find a way to keep the school functioning as part of an integrated university. The first step that propelled the integration of the university was the merger of Carnegie Tech with the Mellon Institute in 1967, which became Carnegie Mellon University, as it is known today.[lviii]By 1969, the administration decided to integrate Margaret Morrison into the College of Humanities and Social Sciences, offering majors in history, economics, and the social sciences. MMCC began to phase out in 1969, and by 1973 the last class of Maggie Murphs graduated, forever leaving their beloved school for new opportunities within the greater university.

While Margaret Morrison Carnegie College no longer operates as a separate entity of Carnegie Mellon University, the legacy of the women who attended is still very much alive. Many of the women who shaped Margaret Morrison also shaped the surrounding neighborhoods and continue to do so. Margaret Morrison graduates continued associations with churches, or YWCAs in the area, and often volunteered in various capacities. Women at MMCC often cared not only for the poor, the orphaned, and the downtrodden, but fellow MMCC students as well. The Women of Margaret Morrison Carnegie College were not just full-time students either. In the early years of Margaret Morrison, students were often members of the Methodist Church on Forward Avenue, or the Shadyside Presbyterian Church, both of which contributed time and financial support to the city for orphans, the sick, or the poor. By the 1930s, Maggie Murphs began supporting their fellow students at Carnegie Tech both academically and financially. But they supported their families and communities with the educations they acquired by remaining in Pittsburgh and filling jobs

downtown as secretaries, doctors, and teachers. Such was the motto of the Margaret Morrison women, that their duty was to aid in the struggles of mankind.

The Margaret Morrison Carnegie College Guild

The Margaret Morrison Carnegie College Guild was established in March of 1910, and served as the main and arguably the only philanthropic group run solely by students on campus for several decades. Its stated mission, which continued to be modified throughout the history of the organization, was to do charitable work around Pittsburgh. The focus of this charitable work was often decided by the President at the beginning of each academic year.[lix] Consisting of primarily upper-class-women, the Guild elected their officials during the Spring semester and they continued to serve for a year, planning various fundraisers and activities for the school year. While the mission of the organization changed over time with various presidents, the Guild remained committed to social service activities on campus and in the community. In these efforts, the Guild raised money for the poor and the downtrodden, first for immigrants in Settlement Houses or families in need in the city, and later for students who had suffered hardship or those students whom they saw fit to reward for their good efforts. Thus, the Guild was an active and powerful force during its tenure at the school.

The mission of Margaret Morrison Guild (Guild, MMCCG) was first expressed in the 1911 *Thistle* yearbook. Between 1911 and 1915, the mission defined by the Guild would change little, and a 1913 handbook captures it well:

> The Guild is the only philanthropic organization of the school. Membership is open to all students upon payment of the annual dues of $0.25. Meetings are held once a month. Sewing for hospitals and asylums is a part of the work. Every year the Guild assumes the responsibility of raising a sum of money for some charitable institution of Pittsburgh, and bazaars and teas are held for the purpose of meeting this obligation. It is hoped that the Guild may also stimulate the students to an active interest in every form of civic and social work. *Its spirit is embodied in the motto of the Margaret Morrison Carnegie School: To make and inspire the home; To lessen suffering and increase happiness; To aid mankind in his upward struggle; To ennoble*

> *and adorn life's work, however humble. These are woman's high prerogatives [emphasis added[*[lx]

The Guild thus chose to embody the spirit of their motto, which hung over them each day they entered the Margaret Morrison building. Over time, however, the Guild's focus would shift from the original intent of providing cards, clothing items, and service to orphanages, hospitals, and asylums in the area, to continually reflecting the needs of the Margaret Morrison Carnegie College. There are three main shifts reflected in the surviving documents of the Guild. Beginning as an organization dedicated to providing service to the needy of the city, and shifting around 1938 to include students in need, the Guild's final mission would rest as an organization dedicated solely to students on campus. The first shift occurred around 1938, the second, around 1942, and the final shift in its mission would begin around 1948. The final shift was completed in 1949, when the Guild was completely dissolved as a philanthropic organization on campus. Thus, beginning as a campus organization providing needed support to the city, the Guild eventually included needy students in its mission, and ended by supporting the women of Margaret Morrison.

The first shift, represented in the 1938 *Thistle* blurb about the organization, shows that it had dramatically changed missions. Beginning as an organization dedicated to helping the needy of the city, the Guild's shift focused on combining the Women's Scholarship Organization to create an all encompassing club that was more easily adaptable to the needs of the city and the students.

> The Women's Guild is a philanthropic organization working for the benefit of needy students on campus. Each year it attempts to raise a certain sum of money for scholarships to be given to those who need them. This year the Guild has become an entirely new organization, for the function and ideals of the Women's Scholarship Organization and the old Women's Guild have been combined into a new bigger and more successful Women's Guild. It is made up of representatives elected from all the women's organizations in the school, including departmental clubs, sororities, honoraries, and dormitories. Each organization sends to Guild one representative. This year in the early fall a Tag Day was held. In connection with Mortar Board money was raised at Christmas time by the sale of candy to aid Scotch Bottom Settlement. One March 12 a Bridge Style Show was given at Whitefield Hall. The theme of the show was 'Your Spring Carnival Wardrobe' and the models were members of the Guild. Music was played by a string ensemble,, door prizes were given, refreshments were served and there were seventy-five tables of bridge and

> other card games. It was a most successful affair and helped much toward the goal that the Guild has set for themselves. The sale of candy in the dormitories by the representatives of the Guild has also helped, for it has netted nearly one hundred dollars. Plans are now being made for a Tag Day and a Tea Dance to be held in the late spring.[lxi]

Scholarships for women were becoming more readily available, and by 1940 about 9 scholarships were given out each semester to needy women from the area.[lxii] Support for the Guild was abundant; most of the campus attended the social events the Guild held including Tag Days, annual dancers and bazaars. Students, including Alumna Laura B. Green, supported the Guild by buying their tags each year.[lxiii] Other Guild eventsincluded an Annual Dance, a Christmas Bazaar, and several small fundraisers, including selling homemade candy and cupcakes, were a part of the life of the Guild. All of the money raised during these events was donated to scholarships and other causes.

The second shift that can be traced began in 1941. The Guild's shift, and its inclusion of the Women's Scholarship Club notable influenced its mission throughout the late 1930s and early 1940s. "The Women's Guild is a philanthropic organization working for the benefit of needy students on campus. Each year it attempts to raise a certain sum of money for scholarships and loans to be given to those who need them."[lxiv] From the early 1940s onward, the Guild would represent women in need on campus, providing scholarships for women who could not afford to attend MMCC. The money raised from bake sales, Tag Days, and other events was deposited into a savings account, and a portion of the money being sent to various philanthropic causes around Pittsburgh. This mission would continue until 1946, when the Guild would add its last and final duty to its mission, "that of helping to orient freshman."[lxv]In that year the Guild officially began to integrate its community philanthropic efforts with those on campus as reflected in the freshman orientation programs that remain in place today.

The dissolution of the Guild is not entirely understood. In 1949, records show the Guild was dissolved, and according to *surviving* documents, the decision came from the student body and the President of the Guild. In a letter from Doris Moore, the President of the Guild, to Mr. Dickinson, the Chairman of the University, she noted that the Guild "ceased existing on Tech campus"[lxvi] on May 23, 1949. The reason is not explained, but a *Tartan*

article also mentions the "imminent death"[lxvii] of the Guild. While, no specific reason is given, it can be inferred that the duties of the Guild were either absorbed by the University or had become obsolete.

My first theory was that the Guild was no longer procuring enough money to continue their services. However, earlier documents show that during the history of the Guild, a savings account had been opened with the permission of Dean Tarbell, with the sum of $800 from an anonymous donation.[lxviii] The money yielded a small amount of interest that was used for events, fundraisers, and scholarships. After the dissolution notice from Moore, the money the organization had accumulated in its 38-year life span was given to the Financial Aid office for distribution among the women of the Carnegie Institute of Technology as awards for academic achievement or hardship in sums of no more than $100 at a time.[lxix] Thus, the Guild could not have been facing financial problems. Instead, it is more likely that the Guild's mission, to aid students in need, was undertaken by the University and no longer needed as a student run organization.

The history of the Margaret Morrison Carnegie Guild, later the Carnegie Guild, is a notable achievement of the women of Margaret Morrison. Not only did it embody their motto of service and dedication to those of the less fortunate, but it allowed them to leave a mark on the city of Pittsburgh and a legacy to the Carnegie Institute of Technology. While the Guild often shifted its mission to accommodate a changing city and university, they continued to strive in efforts to aid in the suffering of man, and succeeded in providing services and support to the city in times of need. An effort of not just women, but of an entire student body, the Guild also represents a larger collaboration of ideas and support than had been seen at Carnegie Institute before the introduction of sororities into campus life.

Sorority Involvement

Margaret Morrison not only provided women with academic challenges and opportunities, but they also strived to provide social events and opportunities for social organizations to flourish. Such organizations included the Carnegie Guild and various sororities, academic clubs, and other activities not related to academics. Several sororities were already flourishing in the Fine Arts school, but for Margaret Morrison women, few

organizations could represent and fulfill the purposes of a sorority. However, after 1929, six sororities were approved for campus association, including Beta Tau Lambda, later Kappa Alpha Theta.

Dean Mary Breed, a strong force on the Margaret Morrison campus, was staunchly opposed to sororities on campus. Theta Sigma was the first sorority to try to open at Margaret Morrison, but a "sorority ban by Dean Mary B. Breed caused the organization to shut down."[lxx] In 1918, Dean Breed issued an official statement that women in Margaret Morrison could not hold membership in a sorority.[lxxi] In 1929 Dean Breed retired, replaced by Dean Mary Watson Green. While she was more sympathetic to sorority life on campus, she strictly opposed their national affiliation. Margaret Morrison women were then given the chance to build local sororities on campus.

By the 1940s, the Dean of Margaret Morrison was more open to instituting national sororities on campus and the students of the school began to take the steps to bring sororities into their lives. In 1943, the "first national sorority, Alpha Epsilon Phi, was installed at Carnegie Tech."[lxxii] One year later, the next five sororities went national, including Kappa Alpha Theta, Delta Gamma, Kappa Kappa Gamma, Delta Delta Delta, and Chi Omega.[lxxiii] By 1945, seven sororities on campus had become national, the last of which was Sigma Kappa, and the Margaret Morrison women were no longer constrained by old ideas.[lxxiv]Developed as a social organization, sororities were able to take on their own identities, whether as philanthropic or academic organizations dedicated to bringing women together.

One of the first national sororities at Margaret Morrison, Kappa Alpha Theta, originally Beta Tau Lambda, became a nationally affiliated sorority in 1944.[lxxv] Over the years, they have provided women with leadership opportunities, and charitable causes to strive towards. Some of their philanthropic missions include Cancer Research, Asthma Research, and various women's causes in Pittsburgh.[lxxvi]The early historyof the sorority is marked by camaraderie, social events, and charitable events similar to those offered by the Guild. Later articles and notices of the sorority specifically link it back to the city of Pittsburgh and its efforts to continue to be a part of the greater city as students and women.

In 1968, in an article in the Mt. Lebanon paper, KAT was noted for its charitable work with the Western Pennsylvania School for the Blind and the Women's Club of Pittsburgh.[lxxvii] Both important causes in the city of Pittsburgh, their donations of time, trees, and money had not just given the city some beauty, but had also sparked appreciation from the School for the Blind. Many of their philanthropic causes were supported by various events on campus, including "Mr. Fraternity,"which began in 1986. Kappa Alpha Theta sisters developed this event, Mr. Fraternity, after a fellow sorority sister, Karin Johnson, died suddenly from an acute asthma attack. "This pageant showcases fraternity men in a variety of areas of competitions including formal wear, swimsuit, toga wear, and talent portions. Thanks to our generous community, Theta manages to raise and average of $5,000 from Mr. Fraternity which goes to benefit the Breathing Association, in honor of one of our sisters, Karin Johnson."[lxxviii]

Every sorority at Carnegie Tech, and now, Carnegie Mellon, has aided the city in one important way or another. Many use their chapter's national philanthropy causes to support those in need in Pittsburgh. These causes include money for childhood cancers, reading improvements, and for shelters. Alpha Chi's mission includes "supporting Alpha Chi Omega's national philanthropy, domestic violence awareness, serving in local neighborhoods, or supporting other Carnegie Mellon organizations' philanthropic efforts…."[lxxix] Benefiting not only the greater campus, but also the city of Pittsburgh,sorority outreach at Margaret Morrison in the past was strong and its legacy can be found not only in the newspapers and archives, but also in themany women who went on to become part of the city, as employees, teachers, and citizens.

Other Philanthropic Opportunities/City Collaboration

The Margaret Morrison women did not just focus their attention on the Guild. In addition to religious organizations, and various school clubs and sororities, the women also engaged in other activities. Other organizations like the Margaret Morrison Social Work Club, the Young Women's Christian Association, and various religious affiliations also helped to shape the relationship between the Maggie Murphs, and the surrounding Pittsburgh area.

In 1915 the Margaret Morrison Social Work Club is mentioned in the *Thistle*.[lxxx]This club is described as wanting to advance social work education through research and by creating additional research opportunities. Just as the Guild's mission shifted over time, so did that of the Social Work Club. By the 1920s, some of their noted issues of importance include the Disarmament Conference in 1922, and social policies that would benefit women in higher education. Distinctly different from the Guild, the Social Work Club also provided research and educational opportunities to students and faculty alike, allowing women to engage themselves in areas of interests throughout their time at the school, something that benefited both students and the community alike.

In 1918, the Young Women's Christian Associated (Y.W.C.A.) was chartered with the purpose of encouraging education and religious support of women at the school. According to the student handbook from 1918, the group led membership of all clubs with 1/3 of the student body.[lxxxi] The Club continued steadily throughout the history of Margaret Morrison as a vehicle for the movement of religious support and education for women. It was often described as a shining achievement of the school. In 1930, its aim was described as:

> The Y.W.C.A., during the past, has offered many benefits to the women students of both the College of Fine Arts, and the Margaret Morrison Carnegie College. The membership campaign, carried on last fall, was very successful in obtaining new members for the organization. The Organization has gained a firm footing on our campus, and is listed among the advantages of the university.[lxxxii]

Indeed, the YWCA was advantageous for many women because it was religiously focused, and sought to ground women's education in religion. As a campus organization, it offered a place for women to build their religious education, and a way for them to enjoy leisure time reasonably responsibly. Every year the Y.W.C.A provided outings for the women in the club, and taught members skills such as rifle shooting, running, and physical education. In 1938, the YWCA became the CWCA (Carnegie Women's Christian Association) and its mission shifted to assisting students on campus with moral, social, intellectual, physical and spiritual development. The history of CWCA ends in the 1960s, when the MMCC School was phased out into the larger community.

Around the same time, women's influence in the churches in the area was being shaped. According to one Alumna, Lucy Douglas, Kappa Phi was an important member of the community. "The chairman of this committeeshall ascertain as far as possible the number of Kappa Phi girls actively working in the local church or churches of their university community and endeavor to enlist in such work all members who are not already active…"[lxxxiii] Their goal was to ensure that religion stay an active part of the education of women, and through the support of the local YWCA, and other churches in the area, the women were able to maintain the membership of their club. These organizations, often small in membership, allowed another vehicle for women to be a part o the Greater Pittsburgh area, and give back to those in need, whether students, or citizens.

Education

Many of the developments in childhood education in Pittsburgh are directly linked back to the women of Margaret Morrison. Through research, education, and training, hundreds of women graduated from Margaret Morrison and became teachers and educators in the city. One of the most popular majors at Margaret Morrison, childhood education is a crucial part of their legacy and a part of Carnegie Mellon. Their achievements include improving the school system in the 1960s and discovering new ways of teaching. The Children's School, Cyert Center for Early Education, and other such initiatives have helped bring the community closer with students and professors at Margaret Morrison, CIT, and Carnegie Mellon University, allowing the partnership with the community to mutually benefit the campus community.

One of the more notable and well-known achievements in education at Margaret Morrison includes the development of the Children's School. Introduced by Dr. Ann B. Taylor, the idea behind the school was to provide students and faculty first hand opportunities to research new methods of teaching and learning for young children's development. Women in Margaret Morrison often participated in the research involving children at the school, observing their behaviors, development, and growth over the span of a semester.[lxxxiv]Widely regarded as unique and cutting edge, the school continues to operate on campus, with research open to both undergraduates and graduate students, and

professors alike. Students enrolled in Child Development are required to observe a child over the semester and track their developments.

Other advancements in education in the early 1960s include the development of Camp Louise, operated as a means of bringing students and educators together. In 1969, the mission was described as "…the forerunner of their related one-day seminars held in the spring of 1966, and spring and fall of 1967 with Carnegie personnel and student and high school counselors and students discussing the subject: "What is College all about?"[lxxxv] Together with students and educators from both Carnegie Institute of Technology and surrounding high schools, the seminar held discussions on the meaning of college, how to succeed in college, and what to major in. The influence of current college students on the young high school students was noted as being a positive influence on how students would chose their future educations. Dialogue between the two was not just a direct link from Margaret Morrison women back to the community; the dialogue created opportunities for everyone to improve their educational aims and improve their strategies.

By 1969, the women of Margaret Morrison were fired up to change education. Beginning with simple dialogues since the early 1960s, and continuing with research at the Children's School, women were leading the way for better education. One of the most important, and well known proposals that stemmed from such research was the proposal to the Pittsburgh Board of Education by Carnegie Mellon University and Chatham College to establish a cooperative training program for Kindergarten and Primary Grade Teachers in the East Hills Elementary School.[lxxxvi] The idea behind the proposal was to provide more open education, literally. They believed that walls should be knocked down, teachers should have more cooperative opportunities, and students should be free to explore their world beyond the borders of a classroom.

Current Initiatives/ Margaret Morrison Legacy 2008

The women of the Margaret Morrison Carnegie School may have graduated and pursued their own lives outside of Pittsburgh, but their voices continue to echo today down the halls of both the MMCC building and every other building on Carnegie Mellon's campus. Many of the graduates still return to campus each year during Homecoming and the Spring Carnival. Since 2000, there have been lecture series' featuring alumnaand their families.

The lectures include personal histories of former students, highlighting bothpersonal achievements and ways to advance women in education. In addition, many of the lectures also focus on issues of importance to women. Each year, the women join together and host a tea in October during Homecoming, where scholarship recipients are invited to chat over a cup of tea with their sponsors and other alumna of the MMCC classes. And while men continue to outnumber women on campus, women maintain a formidable presence on, developing programs that not only extend out to other women on campus, but to women all over the city.

Today, there are several programs that focus on women at Carnegie Mellon. These programs aim to strengthen the ties between women on campus and to provide an outlet for women to give back to the Pittsburgh community. A great example is "Strong Women, Strong Girls," a mentoring program focused on building relationships with women in the community in an effort to further empower women to build self-esteem and life-long success. "The mission of Strong Women, Strong Girls" says its charter, is to build upon the lessons learned from strong women throughout history to help girls and young women become strong women themselves. By building communities of women committed to supporting positive social change, Strong Women, Strong Girls works to create cycles of mutual empowerment for women and girls."[lxxxvii] Through the mentoring of young women across socio-economic boundaries, women at Carnegie Mellon can continue to give back to their communities. In addition to providing mentoring to middle school aged girls, the students at Carnegie Mellon involved in the program have an opportunity to connect with established women in the greater Pittsburgh community. This mutual benefit has created increased involvement and opportunity on both sides.

True to their legacies before them, they are building paths for more women to succeed in the future. Additionally, the program has expanded in Pittsburgh to include the mentoring of Carnegie Mellon women as well. "A new addition to the Carnegie Mellon SWSG program is the creation of a partnership with Leadership Pittsburgh, where accomplished female professionals in the Pittsburgh area mentor the Carnegie Mellon SWSG volunteers."[lxxxviii] Now, women from Pittsburgh's most successful companies and

organizations are able to reach back into Carnegie Mellon and give young women some professional guidance.

Another important program on campus is the Carnegie Mellon Society of Women Engineers. Developed to empower women studying engineering at Carnegie Mellon University, and giving them access to opportunities after graduation, the group has grown to include outreach in the Pittsburgh community. Their mission is simple: "[to] Provide a support network to students pursuing a degree in engineering allowing for aspiration, advancement, and achievement, through various social and professional events, that benefit students, the university, as well as the community."[lxxxix] Their support network not only benefits current women at Carnegie Mellon studying Engineering, but it also supports high school women curious about engineering in college. Their outreach is amazing. According to the Women in Engineering's website, "The Carnegie Mellon University Student chapter of the Society of Women Engineers extends an invitation to girls from your senior high school to attend the annual High School day workshop. Each year SWE hosts over 300 high school girls from nearby Pittsburgh schools [who] learn more about engineering and the different engineering disciplines."[xc] In addition to providing high school women the opportunity to experience engineering first hand and to have their questions answered, the group provides outreach to middle schools as well, hoping to garner an early interest in the sciences among young women. Continuing the legacy of Margaret Morrison women before them, the Engineers at Carnegie Mellon have developed programs that guide, and spark interest in the sciences.

Another important outreach group at Carnegie Mellon centered on providing young girls and women equal opportunities, is Women@SCS. Developed by women in the Computer Science School "to create, encourage, and support academic, social, and professional opportunities for women in computer science and to promote the breadth of the field and its diverse community,"[xci] the organization has indeed done just that. By providing its current women with mentors who will guide them through their first three years on campus and provide outreach opportunities for women to become involved in their community, the organization has provided a bridge between the sciences and women. Some of their outreach programs include Technights, Take your child to work days, and

partnerships with Google and the Girls Scouts. Each of these programs affords women in the community and at Carnegie Mellon the opportunity to provide for and support each other.

TechNights is a program developed to give young women the opportunity to experience science. The program began as a way of introducing girls to the sciences in a fun and creative way. "Creative Technology Nights for Girls is a program focused on exposing middle and high school girls to creative technologies. Using computer animation, web design, programming, robotics, and interactive medias, we hope to engage a future generation of women in technology."[xcii] The organization recognizes the importance of giving women the opportunity to explore science at an early age, and has developed several projects that allow them to explore science safely. Another great opportunity developed by the women in Computer Science is the Google/Women@SCS Girl Scouts Day.[xciii] Developed by students in SCS to give young women in Girl Scouts the opportunity to play with robots and explore their creative sciences side, the program has experienced growing numbers each year. Other programs that offer similar opportunities include Girls, Technology, and Education, a forum on girls and technology in higher education, and several mentoring and conference opportunities.[xciv]

Another program of interest is the OSHER school dedicated to providing education to students in their senior years. Formerly the Academy for Life Long Learning, the school has developed a mission to provide non-credit education classes to senior citizens in the community. True to the Margaret Morrison legacy, "A.L.L. was founded in 1992 by Gretchen Langford, a 1943 graduate of Margaret Morrison Carnegie College"[xcv] and continues to serve senior students in education on campus. While the school provides education to all members of the community for a small per-semester fee, the school was founded by an active alumnus of the Margaret Morrison School, in collaboration with former Dean Steinberg and Professor of History Emeritus Edwin "Ted" Fenton. This collaboration is another way that the school has maintained involvement with the community.

Women at Carnegie Mellon have continued to support each other through the legacy of Margaret Morrison college. Whether it is through developing programs and mentoring opportunities for women in the community, or supporting women on campus, there is no

lack of connection. Just as the women in Margaret Morrison developed programs to stay connected to the community, women on campus today have continued such a legacy. Many of these programs use education as a doorway to introduce new ideas or opportunities to community members, while allowing women on campus to learn about ways to use their majors. Strong Women Strong Girls, Women in Engineering, and Women in CS are just three of the bigger programs on campus that target women in an effort to continue educating, supporting, and enhancing their lives.

Conclusion

It is clear from researching the history of the Maggie Murphs and their interactions with the Pittsburgh community that they have been an essential part of Pittsburgh since the founding of the school. The women of Margaret Morrison Carnegie College began their journey in 1907, and sadly it came to a close in 1969. By 1973, the last class had graduated, and the rest of the women were being integrated into the larger Carnegie Mellon University. Yet, the women on campus continue to provide services to those who need them, whether in the greater community or on campus. The journey of the Maggie Murphs may have officially ended, but their legacy lives on in their activities, and in the various ways they continue to interact with the Pittsburgh community at large.

The Guild's goals throughout the history of Margaret Morrison may have shifted slightly, but its main mission never did: to help those in need.The legacy of helping and alleviating the suffering of those less fortunate continues to be seen in the women on Carnegie Mellon's campus, whether through sorority functions geared at supporting Pittsburgh, or through clubs and organizations on campus that mentor and support young women in the city. Women at Carnegie Mellon are also connected to the Maggie Murphs from Margaret Morrison through sororities, clubs, and the annual Homecoming Margaret Morrison Tea. One thing is certain: Carnegie Mellon women continually give back to their community in one way or another, and in return, Pittsburgh has been enriched by their involvement.

Involvement in the community through educational initiatives supported by students and faculty alike has strengthened the ties between the community and the school

over the years. Collaborations between the school and the school district of Pittsburgh have developed new educational programs, and training programs for teachers, while research in child development has yielded new and exciting theories. Women in science have continued their legacy by sparking an interest in science in young women in the community, and have given them creative outlets for exploring computers, physics, and chemistry. And women at Carnegie Mellon have developed mentoring programs that focus on the needs of the community, while themselves discovering mentors for their futures. In this way, the community and the university has continued to shape each other, effectively adapting to the needs of each. It is a unique relationship that has yielded tremendous results, and will continue to be a part of each student's experience.

Carnegie Mellon University is richer today from the experiences of the women who came before. Margaret Morrison's legacies live on on campus, the most obvious but not the only legacy includes the Maggie Murph café, a place now dedicated to their legacies and memories, and funded largely by the women themselves. Pictures from the history of the school line the walls, while stories and quotes follow. And each yearthe graduates of Margaret Morrison gather in the café during Homecoming for their annual tea, dedicated to honoring young women at Carnegie Mellon who are continuing their legacy. Scholarships from alumni make it possible for women to obtain educations at Carnegie Mellon, reminiscent of the times when the Guild provided scholarships to those students who needed them. And true to their tradition, Maggie Murphs continue to support women, both at Carnegie Mellon, and around the world, whether through Alumni Associations, mentoring programs, or even the OSHER school, where many continue to teach or take classes. Andrew Carnegie would be proud of the school that has become so well known internationally. Just as Carnegie said, "My heart is in the work," so too are the hearts of women at Carnegie Mellon.

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Work, Pray, Give

ELLEN PARKHURST

THIS chapter examines Carnegie Tech and Carnegie Mellon students' relationship with Pittsburgh and the surrounding area through the lenses of employment, religion, and community service. Though Andrew Carnegie's original vision for the school was a technical institute that would educate the sons and daughters of Pittsburgh, the proportion of students who claim Pittsburgh as their hometown has drastically decreased since 1905. While the evening school population remained high for many decades, this attenuation was minimal. However, the closing of the night school in 1971 coupled with Carnegie Mellon University's fast rise to the *U.S. News and World Report's* list[xcvi] of top twenty-five colleges has brought with it a growing diversity among the student population. The nature of students' connection and duty to Pittsburgh has varied with each generation. Once an overwhelming majority, the number of undergraduate students employed full-time in Pittsburgh as technical laborers has diminished to zero. The strong relationships students once fostered with local religious communities have sharply diminished. Conversely, the trend of the past few decades has been an increase in the amount of money students have fundraised and the hours they have contributed to the betterment of the Pittsburgh community. In particular, the past few years have seen an explosion of service-related and philanthropic projects from all corners of campus.

Employment

Andrew Carnegie knew "of no institution which Pittsburgh, as an industrial centre, so much needs"[xcvii] as a technical school. One month after classes at Carnegie Technical Schools began, an evening school was established for students who worked during the day. From the outset there was a distinct difference between day and night students. As Dean Tarbell noted in his history of Carnegie Tech, "there is one outstanding trait that [evening school students] all possess in common…a seriousness of purpose not observable in any similar number of day students."[xcviii] This can logically be attributed to the maturity they gained from their lifestyle. The night school student "works hard all day and attends school at night" and he gets "to see at first hand the applications of [his] school work" to his day work.[xcix] He is also likely to have a family to support.[c] Because night students' "families, religious institutions, neighborhoods and social groups provided for their social, cultural, emotional and spiritual needs," their involvement with campus life remained at a minimum.[ci]

The day students showed tremendous respect for the night students, despite their intramural football rivalry. Roger Pietsch and S. Stanick of the student newspaper *The Tartan* gave a "hats off to the night school students, who sometimes sleep. (We wonder when)".[cii] They also marveled at the night school graduates' commitment to their education. *The Tartan* gave frequent nods to those students who took years to complete their degrees or who commuted from great distances.[ciii] Of the latter group, there were some who commuted from places as far away Ohio and West Virginia.[civ] However, in the late 1940s, 90 percent of night students came from Allegheny County.[cv] Because of the nature of the night school, it is likely that this statistic did not vary much from decade to decade. The day students, on the other hand, did not have such high percentages of Pittsburghers. Because the original purpose of the Carnegie Technical Schools was to educate Pittsburgh workers, the night school effectively carried out Carnegie's vision. It was for this reason that "the evening classes arouse[d] more sympathy and interest in the Pittsburgh area than any other phase of Tech's work."[cvi]

The evening school existed almost completely separate from the day school. The students rarely interacted, though they took all the same courses and used the same

classrooms and labs. Night students had their own publication, *The Carnegie Plaid*, and their own Evening Student Council. *The Carnegie Plaid* frequently ran ads for a job placement agency that said, "We are in touch with a number of Pittsburgh area employers who frequently express interest in hiring night school students being educated in the technical field."[cvii] According to the ad, there were Pittsburgh companies that offered tuition aid to these night school students. In addition to being part of the Pittsburgh workforce, Evening Student Council was a member of the Ohio Valley Region International Association of the Evening Student Councils. This was an organization for local evening schools to connect and share resources, ideas, and dialogue. They communicated through a newsletter called *Valley Views* and also met once a year at a member school for a conference. On May 6, 1967, for example, the regional business meeting for this association was held at Carnegie Tech.[cviii] Although this association was not central to Pittsburgh, it did provide the students of the evening school with a means to interact with the region just outside of Allegheny county.

The evening school officially closed its doors in 1971. Enrollment had dropped dramatically, due in large part to "the University of Pittsburgh School of General Studies offering evening courses that are considerably less expensive."[cix] Today, approximately nine percent of CMU students are from the Pittsburgh area, a stark contrast to the student demographics of the early 1900s.[cx] However,roughly 20 percent choose to stay after they graduate.[cxi] Those 1,000 or so CMU graduates become financial advisors, engineers, architects, musicians, office managers, software developers, and actuaries, among other careers.[cxii] Over the past century, Carnegie students' Pittsburgh careers have shifted from being concurrent with their education to being a result of their education. Additionally, the percentage of students with an employment connection to Pittsburgh has decreased while the types of jobs they hold have become more varied.

Religion

The role of religion on campus has changed dramatically over the past century. From 1905 to approximately 1950, becoming part of a church, synagogue, or mosque was the primary way students not from Pittsburgh became introduced to the city. Student

handbooks included information about the locations of the nearest places of worship, as well as the times of services. Various churches and religious organizations established groups on campus. These included "the Newman Club, Canterbury Club, Technon, and the YM and YWCA."[cxiii] Student groups interacted with religious communities. The Glee Club, a men's chorus on campus, frequently sang at church functions.[cxiv] Churches regularly held social events for students "for the purpose of familiarizing out-of-town students with local churches."[cxv]In 1939, religion, Christianity in particular, was so important to Carnegie Tech students that every student organization participated "in a nation-wide movement to raise religious life on university campuses from the low ebb to which it has fallen."[cxvi] Religious officials from Pittsburgh congregations came to speak to Tech students, and annual Religious Weeks featured presentations from these same leaders.[cxvii]

Protestant students held on to their particular denomination during these first decades. In 1929, "thirty-two denominations were represented among the student body of the Carnegie Institute of Technology, according to a church preference list complied from the registration files."[cxviii] A search[cxix] through *The Tartan* for articles about Lutherans does not bring up anything later than 1965. The keyword "Methodist" does not yield anything after 1964; Presbyterian, 1965; and Episcopalian, 1957.[cxx]An additional search shows that Catholics seem to have enjoyed a steady presence in the student publication. Jews have seen their visibility on campus increase due in large part to two events: 1) in the 1940s, CIT became one of the first American colleges to abandon an admissions quota for Jewish students;[cxxi] and 2) Pittsburgh's chapter of Hillel (Jewish University Center), was established in 1951.[cxxii]

Hillel's introduction to Jewish students in Pittsburgh followed closely on the heels of the 1941 establishment of the national organization InterVarsity Christian Fellowship (IVCF).[cxxiii] One of IVCF's first events was a 1950 "conference for college students in the Western Pennsylvania area."[cxxiv]Cooperation between the religious communities of different Pittsburgh colleges began even before Hillel and IVCF came about. In 1939, CIT partnered with the University of Pittsburgh, Pennsylvania College for Women, and the ministers of Pittsburgh churches to host a week of discussions on religion.[cxxv]These conferences and organizations represented a nationwide shift on college campuses from

religion as a window into the outside community to religion as a means of creating a community among students. It can hardly be coincidence that references to individual Protestant denominations faded shortly after IVCF came to have a presence on campus.

Another Christian group that was prominent on Carnegie Tech's campus was the Y.M.C.A. In the 1910s, President Thomas Baker "provided a variety of support" for this organization.[cxxvi]For decades, "every student upon registration is a member of C.W.C.A. [Carnegie Women's Christian Association] or Y.M.C.A."[cxxvii] By 1950, "the 'Y' [had] broadened its scope" and sponsored "picnics, social events, and retreats" in addition to its traditional religious activities.[cxxviii]These included city-wide conferences,[cxxix] religious lectures (again from Pittsburgh clergymen), and weekly chapel services.[cxxx]The YM/WCA grew to dominate campus events so thoroughly there are no fewer than 219 articles in *The Tartan* about the Y and its events. From the time the Y first came to campus until its presence faded in the 1970s, it was involved in a range of student activities, from supporting efforts to end the Vietnam War,[cxxxi] to offering a SCUBA course,[cxxxii] to hosting turkey dinners, chess games, and ping pong.[cxxxiii]

The YMCA's presence on CMU's campus has faded drastically. Membership is now available to those who pay for it, which means far fewer students are members.[cxxxiv] IVCF, CrossSeekers, and Hillel, however, have the benefit of high levels of participation, and are part of a large and diverse body on campus called the Carnegie Mellon Interfaith Council (CMIC). This Council includes student groups from almost every possible religious background and it serves to "[support] and [encourage] religious and spiritual life within the campus community."[cxxxv] Although the Student Development Office, through which CMIC operates, offers information online[cxxxvi] regarding the nearest houses of worship, the student handbook no longer provides this service.[cxxxvii] Instead, the handbook lists the phone numbers of various student-oriented religious organizations. This is symptomatic of the trend that Carnegie students' religious identity went from being externally defined to being campus-centered.

Philanthropy and Service

While religion was thriving on the relatively nascent campus, however, the first philanthropic activities and initiatives at CIT were few and far between during that period and pale in comparison to what we see on campus today. The Carnegie Guild was a female student-run group, and it was "the only philanthropic [student-run] organization of the school" until Alpha Phi Omega was created in 1929.[cxxxviii] Its mission changed from year to year, though for many years the organization raised money to be "used in various types of philanthropic work off campus, often in connection with city welfare organizations."[cxxxix] A few of the Guild's initiatives were "sewing for hospitals and asylums," fundraising "for some charitable institution of Pittsburgh," and "collecting Christmas toys for needy children."[cxl] In the 1930s, the later years of the Guild's existence, this interest in serving Pittsburgh waned and a desire to provide "financial aid to needy Carnegie students" emerged.[cxli]

Perhaps because of Andrew Carnegie's philosophy that "the man who dies thus rich dies disgraced," the administration of the school also often sponsored philanthropic initiatives.[cxlii]The school endorsed these initiatives more readily if they "eliminate[d] the many separate appeals for help and the expense incident to separate campaigns."[cxliii]Regardless of the reasons, Carnegie Tech often touted the Pittsburgh Community Fund as an efficient fund-raising program because it consolidated the campaigns of "almost every worthwhile service organization in Pittsburgh."[cxliv] Though *The Tartan* never fully listed the "eighty-two social agencies [that were] supported by the Community Fund,"[cxlv] it did report that in 1935, "6,291 families received help from the fund, 54,057 individuals received health building or disease prevention service…and 5,897 dependent children received food and shelter."[cxlvi] It also mentioned that "membership in the Community Fund is open to all established accredited social service organizations in Allegheny County."[cxlvii]

This meant that the Community Fund really was the most expedient way for a Carnegie student to contribute to the betterment of Pittsburgh. The Community Fund "reduced the inconvenience and waste that used to be associated with giving to social agencies."[cxlviii] While school officials at Carnegie Tech strongly supported the Community Fund, students appeared to need a great deal of prodding. Although the 1938 goal was to raise $5,000, students managed to contribute a mere $664.55, barely more than a third of

what the faculty contributed.[cxlix] This was even an improvement over other years; in 1934, students gave $234.05. Students' poor showing in the Fund demonstrated either that they did no have money to spare or that they were apathetic.

The Fund's presence on campus ended in 1941 after a ten-year run, but a similar campaign called Campus Chest began in 1949. Campus Chest was a nation-wide fundraising movement on college campuses. In 1950, it was described as CIT's "contributory organization participating in Community welfare aid" that did not have "just another Community Chest appeal; Boys' Clubs, Community centers, and visiting nurses are only a few of the groups receiving aid from this program."[cl] Having "one and only one solicitation of funds during the school year" was just as important with the Campus Chest as it had been with the Community Fund.[cli] In 1939, Tech students lauded the Fund because the money bought "more necessities for those who need them; less of it [went] to administration."[clii] In 1949, *The Tartan* lamented the fact that "attempts to raise additional funds [for the Campus Chest] must violate one solicitation policy."[cliii]

Funds for that year's Campus Chest drive were solicited with the plea to "help Carnegie Tech to regain its position as Pittsburgh's most community-conscious college by giving as much as they are able to the Campus Chest."[cliv] Whether this was ever the case for Tech or not is a matter of debate. On the one hand, campus goals for the Fund and the Chest had always been lofty in the hope of "establishing a goal for other organizations to shoot at."[clv] On the other hand, Tech students frequently failed to meet the target set for them. This is evident from the numerous occasions where the Campus Chest deadline was extended.

By 1964, the Campus Chest funds went beyond Pittsburgh agencies to international, national, and Carnegie Tech specific charities. However, independent of where the funds were going to, Campus Chest advocates had a difficult time convincing students to donate to it. In the first Campus Chest drive, Tech students performed abysmally; Pennsylvania College for Women, "Mount Mercy, Duquesne, and the public schools [went] well over goals set higher than at Tech."[clvi] In 1955, the University of Pittsburgh students challenged Carnegie Tech and Duquesne students to see who could raise more money per capita. Each year the funds organizers used different tactics to instill in the students a sense of duty or

pride or just plain interest in the whole matter. Some of these approaches included having a separate drive for students,[clvii] a plea from Student Council to "give us one day's tuition,"[clviii] and a competition between residents of Morewood Gardens and fraternity brothers.[clix]

Perhaps the organization that achieved the most success regarding increasing student participation in the Campus Chest campaigns was Alpha Phi Omega. Carnegie Mellon's chapter of Alpha Phi Omega, the national service fraternity based on the Boy Scouts, has been in existence since 1929. Around 1950, A Phi O decided to start a competition called Ugliest Man on Campus (UMOC) to help raise money for Campus Chest. The fraternities fielded candidates for the competition and students could buy votes. A penny bought one vote, a nickel 6, a dime 13, all the way up to 3500 votes for twenty dollars and beyond.[clx] UMOC was so popular it continued off and on until 1990, even though Campus Chest ended in 1966. The beneficiaries varied from year to year and included St. Jude's Children's Research Hospital, United Way, and the Pittsburgh school lunch program.[clxi]

Alpha Phi Omega started out almost solely to benefit the students of Carnegie Tech. However it eventually branched out of its role of service to the CIT/CMU community. Where in 1955 it was praised for taking "the phrase 'service to the school' to heart,"[clxii] it gradually began to be known for its service to Pittsburgh as well, particularly starting in the 1980s. From creating new Carnival events to raise money for charity, to tucking in students to raise money for the Pittsburgh Children's Hospital,[clxiii] A Phi O has come to mean more than just C-Books and fried Oreos.[clxiv]

Alpha Phi Omega and other organizations have had to work hard in the face of apathy. Student apathy has been a much-bemoaned fact of Carnegie Tech and Carnegie Mellon student life, particularly in the 1950s and '60s.[clxv] In 1955, some blamed this apathy on society; "not only do students, and society in general hang back from active school and community participation, but they have taken a growing 'againstive' attitude."[clxvi] The author of that article cited the wars and a change in the American political climate as explanations for Tech students' want of motivation. Though it was declared gone in 1957, Joyce Garland Hutton (MMCC '58) said student apathy was always "an on-going topic in *The*

Tartan," and in fact rather than blame it on the wars, she attributed it to the peace and lack of divisive politics.[clxvii]Another possible reason for Tech students' apathetic reputation is that they were living in the shadow of a man who made philanthropy an integral part of his personal philosophy.

Community service reemerged in the late 1960s, though it was once again an administration-led, top-down initiative. In 1968, there was talk of creating a service office "to serve as a liason [sic] between student volunteers and social service projects that heretofore have been a function of the campus Y."[clxviii] Students, faculty, and members of the community met in May of that year to discuss the efficacy of the office. The result of this meeting showed that there was a great deal of mixed opinion. "Some said that a new agency was the last thing this campus and this city needed; others that a channel for information for students looking for work and groups looking for workers would be of uncountable benefit."[clxix] The Y's main concern regarding the venture was not the intentions of the school, but the fact that the Y "was plagued with lack of volunteers on campus."[clxx] The fact that the Y had difficulty finding volunteers despite its significant presence on campus was a clear sign that a movement toward greater service to the Pittsburgh community and beyond would have to come from the students themselves.

And come it did, in a slow series of fits and starts at first. A service sorority,[clxxi] Phi Sigma Upsilon, was created in 1970. That year, the organization decided to "sponsor a cookie sale for the Heart Fund, an International Fair for the benefit of the Hill children in the Child Development Center, fund-raising for the Campus Chest, and activity for the children of Children's Hospital."[clxxii] Mortar Board, a national honors society for college seniors who display commitment to "scholarship, leadership, and service,"[clxxiii] organized an organ donor drive in 1985[clxxiv] and started tutoring disadvantaged high school students in 1988.[clxxv]

Carnegie students' increasing interest in community service matches the trends of the nation. Nineteen sixty-one saw the establishment of John F. Kennedy's brainchild, the Peace Corps. Between 1960 and 1979, the number of national volunteer centers[clxxvi] in the United States went from 81 to over 300.[clxxvii] In 1989, George H. W. Bush gave a speech at the Republican National Convention in which he declared, "public service is honorable" and

said America needs to have "prosperity with a purpose [which] means taking your idealism and making it concrete by certain acts of goodness."[clxxviii] This idea of prosperity with a purpose is only possible with the rise of leisure time. The growth of the white-collar industry has enabled Americans to accumulate more wealth with less work, thereby leaving people with time and money on their hands.[clxxix] On Carnegie Tech/Mellon's campus, leisure time rose with the increase of day students who did not have to work their way through school. Nineteen eighty-two graduate David Mills did not really experience the phenomenon of spare time mainly because under President Richard Cyert's administration academics were rigorous to the point that one-third of matriculated students did not make it to their sophomore year.[clxxx] However, other than this instance, the volunteerism movement on campus echoed the broader national one.

Omitted thus far from the discussion on service and philanthropy and Carnegie students is the Greek community. Traditional Greek organizations[clxxxi] began their careers at Carnegie Technical Schools in 1907 as highly social groups. They existed for the purpose of making school more fun. Gradually, they began to dominate campus events. The 1950s and '60s saw a backlash against Greek life. Gamma Delta Iota, an anti-Greek organization that decided to own the term "God damn independent," was reestablished in 1952 after a brief hiatus.[clxxxii] Debates between Gamma Delta Iotas and Greeks were broadcast over WRCT.[clxxxiii] Editorials and letters to the editor regarding fraternities' value on campus grew so bitter even the *Pittsburgh Post-Gazette* picked up on it.[clxxxiv]This feud in and of itself did not affect students' relationship with Pittsburgh, however it did eventually cause Spring Carnival[clxxxv] to lose patronage and support among the student body. "In 1966, a survey showed that only 40 to 50 of the 700 non-Greek students at Tech bought tickets to Carnival."[clxxxvi] Alleged cheating in the 1968 Sweepstakes buggy races made the campus even more anti-fraternity and anti-Carnival.[clxxxvii] Not only was Carnival seen as a largely Greek event, there were also students who felt disgruntled that they would work hard on booth, buggy, skits, floats, and more just to "end up running an amusement park for Pittsburgh, which is not exactly what the weekend was meant to be in the first place."[clxxxviii] For decades now, however, booth-builders have been catering to the Pittsburgh children who come to Midway in April. The judges' score sheets from 1978 show that each booth-

building organization was expected to create a functional and entertaining game for neighborhood kids.[clxxxix] Today the game has gained even more emphasis, and an educational component has been added as well.[cxc]

Starting in the early 1950s, Greeks began to have a better-known (though still minimal) reputation for service to the Pittsburgh community. In December of 1951, the *Tartan* reported that "Nine of Carnegie's 12 social fraternities plan definitely to include Christmas parties, for under privileged children in their pre-vacation activities."[cxci] In 1955, a letter to the editor of *The Tartan* made a reference to the fact that Council of Fraternity Presidents (CFP) and "individual fraternities have been generously donating their time and energies to local charitable institutions."[cxcii] Six years later, the Junior Council of Fraternity Presidents, CIT's organization of new pledge class presidents, set aside a day of service for four charities in the Pittsburgh area.[cxciii] One possible reason for this slow onset of service-oriented activities was that the fraternities wanted to improve their image and their brotherhood. After all, non-Greek organizations on campus were beginning to exhibit anti-Greek sentiments. Stephen Cohen, a brother of Tau Delta Phi who graduated from CIT in 1962, said, "At the end of my undergraduate years (1961-62), fraternity hazing came under a lot of criticism and Tau Delta Phi instituted community service as an alternative to hazing."[cxciv]

This desire to improve public relations and increase devotion to service and philanthropy happened on a nationwide scale. Delta Gamma Fraternity created the Delta Gamma Foundation in 1951 to provide "resources for educational growth and philanthropic service for all members."[cxcv] In the 1960s, on Penn State's campus, an Inter-fraternity Council (IFC) president "decided to plan and start a dance marathon that would benefit a local philanthropy" in order to improve the Greek community's image on campus.[cxcvi] In 1974, Theta Xi Fraternity "adopted The National Multiple Sclerosis Society as the Fraternity's National Service Project."[cxcvii] To continue this national trend, starting in the 1980s there was an explosion in *The Tartan* of articles about Greek service and philanthropy projects. Delta Gamma held a "charity Anchor Clanker,"[cxcviii] Beta Theta Pi held a "fundraiser party for March of Dimes,"[cxcix] and Sigma Alpha Epsilon washed windows,[cc] among other events. Service to Pittsburgh has become such a staple of Carnegie

Mellon Greek Life that the Fall 2008 admissions newsletter declared on the first page that Greeks "are constantly working to find new ways of organizing events and giving back to the community and to Pittsburgh."[cci] Most Greek organizations on campus participate in a program called Standards of Excellence.[ccii] It is impossible to achieve a decent score if the members of the organization do not volunteer enough hours. Additionally, the Greek report is a public document detailing the statistics of each chapter for the semester. These statistics include amount of money raised for charity as well as the average number of hours each brother and sister spends doing volunteer work.

Greek organizations' dedication to service has evolved in step with and sometimes ahead of the broader campus volunteerism movement. Recognizing students' desire for efficient volunteering, Carnegie Mellon has finally created the school resources needed to make this possible. The Division of Student Affairs places a heavy emphasis on "community engagement and social responsibility."[cciii] Student Activities brings a volunteer fair to campus each year.[cciv] Lastly, to bridge the gap between students and service opportunities, the Student Life Office hires a student to be the community service intern each year.

Current Vision

Although CMU students have increasingly hailed from hometowns outside of Western Pennsylvania, President Jared Cohon's administration has successfully created the administrative support needed to engender an environment of Pittsburgh pride on campus. Cohon accurately stated, "The better our students know Pittsburgh, the more they'll want to stay here," and many of his initiatives have gone a long way toward facilitating this connection.[ccv] Decades ago, night students paid their tokens each day to take the buses and trolleys to Carnegie Tech. Today, students are given an unlimited bus pass in order to encourage exploration beyond Oakland and Squirrel Hill. The residence life staff has likewise come to play a significant role in getting students off campus, with resident advisors and orientation counselors planning excursions into the city for new students during their first week on campus. Students have access to discounted theme park, museum, and sporting event tickets. More local companies come to recruit here than in years past.

Looking toward the future, it is safe to say that Carnegie Mellon's goal is not to have all of its graduates stay in Pittsburgh. However, as the students' relationship with Pittsburgh grows stronger, they are happier to be here. The more current students appreciate the city, the easier it will be to entice potential students to come to the school. It is therefore in the school's best interest to encourage positive interactions between students and city. Because the student body is constantly changing, some links to Pittsburgh are born and die rapidly. The overall trends, on the other hand, have been relatively steady in their rises and falls. The student body no longer has full-time employment connections to Pittsburgh, and those who do have jobs off-campus tend to remain full-time students. While the level of religious identity on campus has been declining, that identity has gone from being individualistic and Pittsburgh-based to being organizational and campus-based. Service and philanthropy have evolved nationally and on campus to become vital aspects of college life. The nature of students' career, spiritual, and philanthropic affiliation with Pittsburgh has changed, but their drive to both succeed and have fun doing it has remained constant.

Policy Suggestions

Carnegie Mellon can augment its current successes with a few policy changes. The first of these is the establishment of a required half-semester course about the history of Carnegie Mellon and Pittsburgh. The second is to send information to new students before they arrive on campus about how to dress for winter weather. This would enable them to pack the appropriate clothing for the wind, rain, and snow that shock those students from warmer climates. On this note, many students' experience with the snow involves wading through it to get to class, rather than actually having the opportunity to play in it. Snow days are few and far between and are underappreciated for their ability to endear students to the Pittsburgh winter. Lastly, although the bus pass is useful, the actual buses are frequently late, too full, or take unfamiliar detours. At least once each year, the community is alerted to a possible Port Authority strike. Many intrepid students can tell stories about being lost or stranded somewhere without a way of getting home. Carnegie Mellon champions the Da Vinci Effect.[ccvi] Here is an opportunity for students studying business and

civil engineering to come together to explore viable transportation options for CMU students, or even come up with methods for Port Authority to increase profits and efficiency so that service interruptions become anomalies.

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The History of Carnegie Athletics

VINCENT GIACALONE

A COLLEGE'S role in its region can take on many forms from economic development to advancements in technology. Often overlooked, however, is the role of athletic programs; such programs can create a sense of community, provide entertainment, and ultimately give back to the region in ways that other community outreach initiatives fail to touch. In this paper, I trace the development of and explore the extent to which Carnegie Mellon University Athletic Programs, since the days it was Carnegie Tech, positively impacted the people of Pittsburgh and the region. I also look at the extent to which the athletic programs increased the popularity of the University.

Carnegie Mellon University is now known all over the world for the success of its programs in computer science, economics and technology, as well as innovative developments in other disciplines. These successes have propelled Carnegie Mellon to new heights within the regional community. However, the athletic program at Carnegie Mellon University, since its founding as Carnegie Tech, has also made great strides to foster a relationship between its sports teams and the community. Although often overlooked, athletic outreach into the community fills in some of the gaps that economic development or educational outreach fails to accomplish. The relationship between the community and the sports teams of Carnegie Tech and then Carnegie Mellon has not been consistently significant through every period of the school's history. Nevertheless, teams,

administrators, and coaches throughout the history of Carnegie Tech and Carnegie Mellon University have risen to the occasion to provide for their community. I will show how opportunities have presented themselves to the institution and, in turn, the administrators and athletes have provided beneficial outreach to the community.

The following chapter will chronicle the story of Carnegie athletics and illustrate highlights of and barriers to community outreach. Although not exclusive, the football team will be used in this chapter as a case study for documenting various outreach strategies through the years. I will focus on the football team as a case study for several reasons. Carnegie's football program has been around since the school's founding; the team has participated in almost every season of play, has the largest following, and has the most players participating. Lastly the Tech football program has a wealth of archival information. As I move into the modern era of Carnegie Mellon athletics, I will also highlight the excellent work of other sports programs in the community.

One of the most important things that the athletic program does for the community is often completely forgotten. In any given week of the school year there is at least one competition in which a Carnegie athlete is pitted against a fierce opponent. Currently these competitions are free to attend and most are located on the easily accessible campus within a short distance of most of the city. Carnegie Mellon's amateur athletes excel at their sports because playing is solely what they love to do. Without a chance to go pro or receive a wage for their performances, most athletes play for the simple love of the game. Contrary to the high prices needed to attend professional sports in Pittsburgh, Carnegie Mellon offers exciting competitions for free. For many in the community this might be the best chance to see organized and highly competitive sporting events. These competitions are great for local entertainment.

Pittsburgh's first chance for local sport's entertainment at Carnegie occurred on October 6, 1906. On that day Carnegie Tech football took the field against the Norman School at California Pennsylvania.[ccvii] Successful competitions eluded the Carnegie football team, however, for some time, with loses by double digits quite commonplace. In 1915, however, Carnegie Tech hired Walter Steffen as the team's head coach and this became a turning point in the history of Tech football. Soon the team was battling effectively with

opponents. Steffen began to schedule teams that held more national prominence than Carnegie's traditional foes. One of the teams with national prominence that Tech had played since the early years was the University of Pittsburgh. The fact that both teams operated within the city heightened the rivalry.

Recaps of their games in the city's newspapers were full of colorful language that chronicled the battle. In one such newspaper article in 1930, the *Pittsburgh Post-Gazette* reported, "To those of you who did not witness the battle, just picture to yourself, the powerful Tartan forces pounding at the Pitt goal line on seven different occasions and only able to crash through once; the Panther line's heroic stand inches from its goal; Lady Luck beckoning a welcoming hand to Tech all day, only to turn her back on the Tartans in the last minute of play."[ccviii] When Carnegie Tech played the University of Pittsburgh, not only did the teams battle each other, but the cheerleaders, bands, and fans squared off in competition to prove their prowess and spirit. In 1919, a physical confrontation between the fan bases of both schools caused the contest to be suspended for two years. The city was enthralled by Tech football. When the rivalry resumed Tech defeated Pitt. After the victory Carnegie Tech celebrated and the *Post-Gazette* wrote, "Today has been declared an official holiday at the Schenley Park Institution. Parades, bonfires, and celebrations of every description have been going on since early this morning will continue until late tonight."[ccix] In their next year, 1926, Carnegie Tech pulled off one of the biggest upsets of all time. Knute Rockne's Notre Dame Irish rolled into Pittsburgh assuming a win was easily in hand. Instead Carnegie Tech beat the Irish. Over the next few years the team performed admirably, winning far more games then they lost, even beating Notre Dame several more times.

The success of the Tech football team complimented the successful seasons of other teams. Carnegie fielded a very successful ice hockey team until their arena was closed down. Tech basketball endured a similar history to that of the football team. They played strong opponents, seemingly over matched, but responded with successful seasons and hard-fought victories. In the 1930s Tech fielded the number one women's rifle team in the nation, an undefeated cross-country team, and a championship tennis team.[ccx] Even though Carnegie Tech was a relatively young University, its athletic programs were delivering on

the field. In his history of Carnegie Tech, Arthur Tarbell highlighted how much the athletic program at Carnegie Tech had grown in the first few decades of the school, "[athletics were such an] engaging side of campus life that has moved so swiftly and on so many fronts that it is difficult to highlight in thirty or more lines all that has happened in a span of thirty years." [ccxi]

The success and hard work of these student athletes gave the school community a sense of pride and purpose. Moreover, the community of Pittsburgh had another successful university athletic program to champion. It is hard to believe how lucky Pittsburgh was to have two institutions of such high national prominence located in just one city. The city of Pittsburgh championed Carnegie Tech sports and especially the school's football team; week after week the *Post Gazette* published large pictorial spreads recapping the weekend heroics or previewing the next week's action. One striking example preceding a Tech vs. University of Pittsburgh football match was a publication on the sports page of a local newspaper. The page contained a huge graphic with the two captains of the teams with their arms outstretched and the other members of their teams standing on them. For a college that was relatively small in stature and new to the nation, this news coverage must have done wonders for Carnegie Tech's reputation, both locally and nationally. A year after beating Notre Dame, Carnegie Tech and the University of Pittsburgh's game were previewed side by side with equal coverage in the *Pittsburgh Post-Gazette*. The preview for Carnegie Tech states, "The Carnegie Tech team, the talk of the nation last fall when it humbled the far-famed Notre Dame eleven will get started on another campaign today…"[ccxii] It is interesting to note that the victory over Notre Dame was talked about across the nation and not just the football nation. Dean Arthur Wilson Tarbell explained how this phenomenon worked: "with major teams across the country having bowed to Notre Dame for several years, this upset [1926] became the talk of the football world that season, and placed Carnegie in an enviable position."[ccxiii] By simply fielding competitive sports teams, the Carnegie Tech athletic program was getting publicity for the university every week in the fall because of football and every week in the winter because of basketball and hockey. In between, other sports such as cross-country or baseball filled in the gaps. Athletics helped people remember the Carnegie name. Carnegie Tech football

obviously entertained the Pittsburgh region as evidenced by attendance at football games. It was not unusual for upwards of forty thousand fans to attend a Carnegie Tech game in which they were playing a prominent opponent.[ccxiv] With the stands packed, the administrators of Carnegie athletics realized they had a unique opportunity to give back to the community. In the late 1920s and early 1930s Carnegie Tech forwent their portion of the tickets sales of various games in order to donate that money to a specific cause. One such game occurred on December 6, 1930 when Carnegie Tech was scheduled to play Washington and Jefferson University. The *Post-Gazette* ran an article promoting the charitable donations of the teams as well as the game itself. The article explained that the prowess of both teams should be enough of a reason to attend the contest, but sweetened the deal by explaining how the game, "is an opportunity to raise a handsome sum for this most worthy purpose which the community should respond to in whole hearted fashion."[ccxv] The charity game was even picked up as far away as New York. After explaining other types of policies to relieve those who were struggling under the crumbling economy, the *New York Times* explained how in Pittsburgh a benefit game was scheduled.[ccxvi] Earlier that year Carnegie Tech traveled eastward to Philadelphia to play the Temple Owls and the money from ticket sales would be donated to help the unemployed. The *New York Times* explained, "…in a benefit game for the unemployment fund…a crowd of 40,000 is anticipated and the student bands of Carnegie, Temple and Pennsylvania will also be present."[ccxvii]

In 1931 a member of the community noted the generosity of the Tech football team: "Not only will they [Carnegie and Duquesne football players] have the personal satisfaction of having done their individual bits including paying their own way into the stadium, but they are going to have a little entertainment of their own… the management of the Pittsburgh Yellow Jackets hockey team … sent invitations…in which both squads were invited to attend Saturday's [hockey] game..."[ccxviii] The city's excitement for the charity game was apparent in an article in the next week's *Post-Gazette*. One of the by-lines of the article states, "Practically every high school in county to be represented at game; co-eds to sell programs." The article continues, "Practically every high school, public and parochial in Allegheny County will be represented at the game. More then 8,000 tickets having been

given to students of the various schools…"[ccxix] The generosity of the Carnegie team in the middle of the Great Depression is a testament to the responsiveness of the team and the institution. This would not be the last time in which Carnegie athletics would rise to the occasion to help a community in need.

In 1926 the success of Carnegie Tech's football team brought national recognition to many of the individuals of the Tartan "eleven." Lloyd Yoder, captain of the squad, was elected to a prestigious all-star game in San Francisco, California. This game pitted all-stars from all across the nation. Yoder's scrapbook revealed he was very excited to be traveling west to represent Carnegie Tech. He wrote various special reports for the local Pittsburgh newspapers chronicling his train ride, his daily activities, and the game itself. In these reports that were published in Pittsburgh, Yoder talks about the long trip, the beautiful California weather, and the day-to-day workings of the team.[ccxx] The game once again provided an opportunity to raise money for a good cause. The all-star game teamed up with a local hospital in San Francisco that specialized in working with crippled children. Proceeds from the game as well as other fund raising activities taking place in California were donated to the hospital. In addition to the team donating its earnings from the games, individual members of the Carnegie XI donated their time and energy to other causes in various communities such as San Francisco.

The success of Carnegie Tech's athletic programs helped the school become better known nationally. I have conducted a content analysis of the *New York Times* Historical Database using the keyword "Carnegie Tech." This method resulted in 134 "hits" between 1900 and 1919. As the Tartans gained more prowess in their athletic endeavors mentions of "Carnegie Tech" rose. Between 1920 and 1929, my search for references to "Carnegie Tech" yielded 761 hits. In the next decade, Carnegie Tech showed up even more times in the *New York Times*; yielding 1531 hits between 1930 and 1940. Although some of these hits correspond to athletic endeavors, they probably also included other articles about the school. Articles with the titles, "Companies Back Carnegie Tech in $475,000 Laboratory Project," from 1930[ccxxi], "Chemical Show Opens Tomorrow: Thousands of Engineers From All Over World Expected to View Advances in Industry," from 1931[ccxxii], and "President Doherty of Carnegie Tech Urges Economic Advance Abreast of Technology,"

from 1936, are examples of articles that moved beyond a focus on Tech's athletic prowess. Although the success of the Carnegie Tech athletic programs cannot account for all the *New York Times* coverage, the publicity that the sports teams raised for the school is apparent in these analyses.

Carnegie athletics reached its pinnacle in 1938 when the football team lost only one game and was invited to play Texas Christian in the Sugar Bowl. The Skibos were defeated by a score of 15-7. By that time, however, President Robert Doherty and the University Trustees had become concerned with an over-emphasis on athletics. They noted that it not only produced a deficit in spending but also may have had a negative impact on scholarship. After the Sugar Bowl, President Doherty's gave a speech in which he said that Carnegie Tech would henceforth de-emphasize athletics and that there would be no more post-season play.

The decline of Carnegie Tech athletics was apparent in the 1940s as Tech football at one point lost 24 straight games. This de-emphasis on athletics reduced the impact of Carnegie Tech sports on the community.[ccxxiii]Ticket sales plummeted, and a 1951 *Newsweek* article reported that the home attendance for the Tartans for the previous season was only 13,000 "instead of 200,000 in the old days."[ccxxiv] According to Glen U. Cleeton, "by the end of the Doherty administration, students rarely bothered to attend games at home, much less the ones played away from home."[ccxxv]

The fateful decision in 1938 to de-emphasize athletics also affected Tech's national fame. Part of the Doherty administration's de-emphasis of athletics involved limiting the selection of Carnegie's opponents to ones of closer geographical location, size, and skill. No longer did Carnegie duel Notre Dame in games that attracted national attention. The *New York Times* historical database shows a decline in articles that referenced the search term "Carnegie Tech football" after Doherty's decision. Between 1940 and 1959, the number of results drops to 156 compared to 2,300 in the previous two decades.

Community involvement over the next few decades also declined because of World War II. Nick Simcic was a left halfback for the football team for three years before his graduation in 1951. He helped Carnegie football finally have a winning season during his

tenure using an option pass that coach Dr. Eddie Baker developed. According to Mr. Simcic, with the amount of studies that a normal student had being added to practice time and game time, players no longer had time to help the community or create benefits. Scholarship was increasingly important and many athletes spent more times studying when not on the practice field. Nevertheless, Mr. Simcic felt as though winning games was giving the community a great gift.[ccxxvi] Those in the community could have a sense of pride about the Carnegie "Eleven" that both studied and played hard.

Although the era that President Doherty ushered in seems to be lacking any positive aspects in regard to athletics there were indeed some achievements. As already chronicled Walter Steffen was one of Tech's finest coaches. In his honor, in 1937, after his death, the Walter P. Steffen Memorial Scholarship Fund was created, helping to replace the athletic scholarships cancelled by President Doherty. It was hoped that this fund, supported by alumni and other donors, would provide aid to needy members of the football team who showed scholastic promise.[ccxxvii] After the Sugar Bowl in 1939, a campaign to raise money for the fund provided twenty-two football players with support.[ccxxviii] In late October, 1941, a student rally on campus yielded almost $600 for the fund. Students who contributed hoped that the Tech team could yield a better freshmen team with the donations. [ccxxix] It was not until 1950, when the team won seven of their eight games, that donations to the fund reached a high point of $13,000. In every other season before that the scholarship failed to receive five digits annually. A 1951 *Newsweek* article recapped that the recent success of the team bolstered the scholarship fund and helped the Tech team compete. Indeed, in 1954 the Tartans went 9-0-1 and were class "B" champions.

Although the fund competed with Tech's endowment for donations, it helped young men who would otherwise have been unable to attend Carnegie Tech. The social mobility that this scholarship provided was a service to the community. Playing athletics at Carnegie Tech, accompanied by hard work in the classroom, provided both an excellent education and the discipline that a sport imparts. It could result in the ability to change one's socio-economic status.

In 1976 Carnegie Mellon University hired Coach Chuck Klausing from West Virginia University.[ccxxx] This would prove to be an epic hiring and contributed to the

success of the CMU football team. Over the next fifteen years, under the leadership of Coach Klausing, the team would only lose fifteen games. However, this success on the field was marred by the tragic deaths of two members of the Carnegie Mellon community; senior tight end Jimmy Starr and defensive coordinator Moe Smith.

Although previous examples of community outreach by athletic teams focused on interactions between Carnegie Tech and the surrounding community, there are many more levels of community/school interaction. On one level, athletics connected the families of Tartan athletes and their communities with Carnegie. Athletics also connected coaching staffs with these communities. Under Coach Klausing's leadership the Carnegie Mellon football team would do everything possible to reach out and connect to these other types of community when they needed it the most.

In May of 1979, CMU tight end Jimmy Starr tragically died in an automobile accident. When Jimmy's teammates heard of his passing, they explained to Coach Klausing that they were going to collect money from each player on the football team and his family to create a scholarship in Jimmy's memory. If this plan had been realized it would have been a great gesture to Jimmy and his family, fine members of the football team's family and community. But to coach Klausing this endeavor was insufficient, and he worried that the plan would not do enough to honor Jimmy's memory. Instead Coach Klausing headed up an effort to plan a fundraiser that would take place on Carnegie Mellon's campus in the gym. The football team would raise money by selling tickets to the event, selling refreshments, and auctioning off memorabilia from the local sports team. A modest endeavor at first, the Jimmy Starr Pittsburgh Sports Gala became a huge event. The Pittsburgh community, upon hearing the idea of the Gala from coach Klausing, responded strongly. Alumni contracted by Coach Klausing owned a printing management company within the city. Their company printed the tickets for the events for free. The football team sold these tickets for ten dollars each. Bob Prince and Emily King were local broadcasters who mc'd the event. Donations from the local sports teams included Pittsburgh Pirate memorabilia and Pittsburgh Penguins merchandise. Mike Webster, an All-Pro Super Bowl Champion center for the Pittsburgh Steelers, also attended and donated some of his Super Bowl jerseys to the cause.[ccxxxi] Food such as beer, Pepsi, Coke, and hot dogs were all

donated for the event. The Gala Benefit was a huge success that raised $40,000 for the Starr Scholarship.[ccxxxii]

As the Gala wound down Coach Klausing's wife and their daughters were some of the last people in the gym cleaning. Returning home with his family in the wee hours of the morning, Coach Klausing put his key into the lock on their house and the key snapped off in the lock. The Coach was forced to break a window to get his family inside that night. It was nearly 3 a.m. in the morning. Finally inside the house, Coach Klausing's wife pleaded with him not to hold any more Galas. Although the Coach would have loved to listen to his wife that night, another member of the community would need the help and support of the Carnegie Mellon Football team just short years later.[ccxxxiii]

The success of the football team during Coach Klauing's tenure can partly be contributed to his defensive coordinator for many years, Coach Moe Smith. Affectionately called Moe's Maniac, the Tartan defense was a force that few opposing offenses wished to face on Saturdays during the late 1970s. It was not uncommon for the Tartan defense to hold their opponents to less then 100 yards of total offense in a game. Moe's success as a defensive coach brought him the opportunity to advance his career and he took at job at Southern Illinois University as their defensive coordinator. He moved his entire family from Pittsburgh and took all of his savings to buy a modest house. After being at Southern Illinois for only a short amount of time Moe Smith was diagnosed with pancreatic cancer. The prognosis was not good, and with no insurance the future was bleak for Coach Smith and his family.[ccxxxiv]

Once again, contrary to his wife's wishes, although undoubtedly with her blessing, Coach Klausing and the CMU football team geared up to conduct a second Gala Benefit. The event was intended to raise enough money to get Coach Moe Smith the treatment he needed and to provide for his family. The donations poured in again, tickets prices were increased to twenty dollars, and the Carnegie Mellon gym was used again for the event. Pittsburgh Steelers Assistant Head Coach George Perles and Defensive Coordinator Woody Widenhofer joined Buffalo Bills linebacker Jim Haslett, West Virginia University Assistant Athletic Director Frank Cignetti and Southern Illinois Head Coach Rey Dempsey at the event.[ccxxxv] Radio DJ's from Pittsburgh, Greensburg and even as far away as Indiana,

Pennsylvania helped with the event.[ccxxxvi] In order to have adequate seating in the gym, players on the team pleaded with the janitors of every building on campus to let them borrow the chairs from classrooms. With the help of a deposit to ensure that seats would be returned, over a thousand people had a place to sit for the Gala. Once again about $40,000 was raised. Coach Smith was able to buy insurance. Coach Klausing even convinced a local steel company executive to fly Coach Smith to New York to receive treatment. Unfortunately the cancer could not be beaten. The money raised helped pay for the treatment, the bills of the Smith family, and a small trust fund that was created for Coach Smith's daughter. An alumnus got Mrs. Smith a job in Pittsburgh and their daughter recently graduated from college.[ccxxxvii]

The Gala Benefits of Jimmy Star and Moe Smith highlight the great lengths that the Carnegie Mellon athletic family will go for one of their own in a time of need. The Gala Benefits, although they took place on campus, were events that embodied the spirit of the city helping out those in need. Coach Klausing was, "really proud. Everyone pitched in." These benefits help expose another sector of the community in terms of outreach. Most of the outreach between a University and a community takes place among people who may have never met before. However, there are layers of community within Carnegie Mellon's athletics that interact with each other every day. Players and coaches, who during a season may see each other for hours upon end, rose to the occasion when one of their own was in turmoil. Community does not need to be defined as the people that live in one neighborhood in a city. The Jimmy Starr and Moe Smith Gala Benefits proved community outreach could exist among and between neighbors.

Other than the two Galas, however, there was not much community outreach for the football team because of other demands on their time. First, the players under Klausing were attending one of the most academically demanding schools in the country. It was a challenge for Klausing to keep many of his players on the football team because of the time commitments that both athletics and the classroom required. Klausing was concerned that many of his freshmen contemplated quitting after the first week of school because of the academic demands, and many after successful preseason camps with the team. According to Klausing, the first week of classes scared the students so much they could not imagine

being successful on the field too. To add another commitment of service would have strained the football team's ability to compete. Secondly, community service was not a tradition that had found a hold in many of the athletic programs of today. On the other hand, according to Klausing, in true Carnegie spirit Carnegie Mellon, "would have been the leaders if we heard of anybody doing it (community outreach)."[ccxxxviii]

In 1986 Coach Richard Lackner succeeded his mentor Coach Klausing and became the head football coach for the Carnegie Mellon Tartans. Coach Lackner asked his players to commit themselves to football first then academics. As a result for Lackner it was, "hard to insist or even demand," for hours of community service from his players. In Coach Lackner's opinion, the football team was, "good entertainment for the school and the community and provided positive public relations from the work the team does in the classroom and on the field."[ccxxxix]

However, much like the teams of the 1930s responded when the nation was in turmoil, Coach Lackner's team responded in the early part of the 21st century. After the shocking events of September 11, Coach Richard Lackner and his staff felt that their game that Saturday was meaningless compared to what was happening to the citizens of our nation. Instead members of the Carnegie Mellon football team donned their jerseys and used their helmets as money containers and went into the community trying to raise money. The team raised $5,535.05 in just one day. This money was donated to the Disaster Relief Fund.[ccxl]In July of 2005, Carnegie Mellon University hired Susan Basset as the new director of athletics. Mrs. Basset has ushered in a championship era for Carnegie Mellon University as many of the sports teams have had record breaking or monumental Division III seasons. Currently there is no policy from the athletic director's office concerning community outreach for the teams. But according to Basset that's not a free pass for any of the teams to forget about the community. Nevertheless, Ms. Basset understands the difficulty in undertaking community outreach projects. As she explains, many of the coaches in the department have been there less then five years. As a result, many of them are trying to get their teams, recruiting, and coaching staffs in order to compete at a high level. Ms. Basset believes that many of the coaches engage in community outreach as much as possible.[ccxli] Another aspect of the Carnegie Mellon athletic family is the Student

Advisory Council (SAC). This council has spearheaded many community service programs involving athletes from all the sports. With SAC and the new coaches settling in, Ms. Basset believes that there is potential within her department to expand community outreach programs.

This potential is gradually becoming a reality, as currently almost all of Carnegie Mellon University athletics are active in the community. Gerri Seidl has coached the women's basketball team for the past twenty-five years. Lately, community outreach involved reading to elementary school children and running free basketball clinics for elementary or youth groups such as the Boys and Girls Club. In addition, the team invites Girl Scout troops to attend games and hang out with the players before and after the contest. Like many other teams, women's basketball jumps at the opportunity to help other campus organizations with community outreach. Most recently they donated to "Cans across the Cut." This fundraiser collects cans and money that are donated to the Greater Pittsburgh Community Food Bank.[ccxlii]

Just like women's basketball, women's soccer participates in an organization on campus that helps the community. "Strong Women, Strong Girls" is, "a group-based mentoring program that uses the study of contemporary women role models, mentoring relationships between college-aged women and girls in grades 3-5, and activities focused on skill-building, to help enhance the lives of at-risk girls."[ccxliii] In the fall of 2008, the women's soccer team, along with their coach Sue Williard, met with some of these "strong girls" and talked about the importance of athletics and what it meant to be part of the team.[ccxlivccxlv]

The men's and women's tennis team, coached by Andrew Girard for the past six years, recently promoted a healthy lifestyle exercise for the community. Before a Pittsburgh Pirate's game, the CMU tennis team teamed up with the United States Tennis Association (USTA) to set up temporary tennis courts in the parking lot. These courts were set up to expose people to the game of tennis, promoting an easy way to stay healthy and fit.[ccxlvi]

Dario Donatelli and his track and cross-country teams have given back to the community recently. His athletes and he participate in the "Angel Tree" program with the

Salvation Army. This program collects toys and other Christmas assistance for disadvantaged children and senior citizens. The track and cross-country teams also do community work with food banks.[ccxlvii] Lastly, "twenty-five members of the Men and Women's cross country teams spread wood chips on the trails in Frick Nature Reserve, to create a better surface for all who use the park."[ccxlviii]

On November 6th 2008, the Carnegie Mellon Swimming and Diving team joined in with 99 other teams from across the nation to participate in the Ted Mullin "Leave it in the Pool Hour of Power." The "Hour of Power" is a sixty-minute team relay in which there are numerous races taking place continuously in the pool. Ted Mullin was a Carleton College swimming and diving athlete who died tragically in 2006 of a rare soft-tissue cancer, synovial cell sarcoma.[ccxlix] Each of the 99 teams was asked to locate donors or people willing to pledge towards their cause. In 2007 the event raised over $43,000 towards the Ted Mullin Relay for Cancer Research fund. Carnegie Mellon's aquatic athletes were proud to be a part of the "Hour of Power" for 2008.[ccl]

Women's volleyball participated in Dig Pink in October, an event similar to the "Hour of Power." The volleyball, team coached by Kim Kelly, was host to the University Athletic Association tournament in October 2008 and this tournament was part of the Side-Out Organizations Dig Pink event. Tournament and games all over the country during October were used as fundraisers for this organization looking to raise money for breast cancer research.[ccli] Carnegie Mellon collected donations at the door and sold bags to raise $300 for the cause. Proceeds will be distributed among research teams focused on target therapies and molecular profiling as well as "living with cancer" organizations nationwide.[cclii]

Today Carnegie Mellon University's athletic program will continue to find these niches where each sport team can positively impact the community around them. By emphasizing a relationship where the team can relate to the community a foundation can be built that can last for years. This policy can also help to minimize the biggest problem historically for athletic outreach: the time commitment necessary for athletes to be successful on the field and in the classroom. As Carnegie Mellon becomes more active in the community it will become necessary for coaches and the administration to weigh the

commitments they are asking their athletes to make. However, if the community outreach can be related to the athletes, much like how the women's soccer team participates in Strong Women and Strong Girls, they may find it more worth their efforts. This is an important policy recommendation if Carnegie Mellon is to continue the great work they are doing in the community.

As the football team has shifted from a national powerhouse to class "B" Champions, to Division III competitors, Carnegie Mellon athletics has strived to remain a vibrant and integral part of the community. President Doherty's decision in 1938 to deemphasize football has made this goal an up hill battle. Nevertheless, the athletic programs either continue to invent new ways to connect to the community or participate in nationwide movements that benefit those in need. Susan Bassett is moving the athletic department in a direction where soon the question will not be are Carnegie Mellon athletes helping their community, but why are Carnegie Mellon athletes doing so much for their community. I am proud as a Carnegie athlete that I can write these words.

The College of Fine Arts

College of Fine Arts

Faryal Kahn

Study of the Arts has a long standing history at Carnegie Mellon University, covering a wide variety of subjects that include but are not limited to the performing arts: namely drama and music, as well as design, architecture and other fine arts. Since the founding of the Carnegie Technical Schools in 1900, the school's arts programs have consistently stood out from those at other universities. An examination of the history and the importance of the arts at Carnegie *Mellon* over time will help us understand how they have contributed to the community and to the rich arts culture that Pittsburgh has today.

This paper will examine four core areas of programming at the College of Fine Arts: Art, Drama, Music and Architecture, and discuss their impacts on the Pittsburgh community. By focusing on case studies in each of these specific areas this chapter will provide an overview of the history of the arts and shed new light on arts programming as a whole at the university. I begin by focusing on one of the performing arts, Drama.

Drama

The Drama Department at Carnegie Tech , now the School of Drama, was started in 1914 under the administration of President Anton Hamerschlag with the admission of eighteen qualified students.[1] Carnegie Tech was the first college in the world to offer a degree in drama.[2] Under Hamerschlag and Baker, the first and second Carnegie presidents, the Department flourished and began to develop the prestigious reputation it holds today.[3]

Once established, under the direction of Thomas Wood Stevens, the first Head, department began to interact with the larger Pittsburgh community as well as the larger theatre world. Probably the most notable form of early interaction between the Drama Department and the Pittsburgh community was the Department's public performances, which, until 1922, were free to the public. In 1922, however, because of over-crowding, the Department was forced to begin charging for tickets, instituting a fee of $5 for two tickets to each show. Hundreds of Pittsburghers subscribed.[4] In 1925, a conference on the status of drama in American universities

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[1] KimberlySchrader, *A History of the Drama Department of Carnegie Mellon University formerly Carnegie Institute of Technology 1914-1981*, 3.
[2] Schrader, 3.
[3] Edwin Fenton, *Carnegie Mellon 1900-2000: A Centennial History*, 61.
[4] Herbert W. Kulby, "Carnegie Tech's Drama," *New York Times (NYT)*, April 23, 1939.

and little theatres, the first of its kind, was held at Carnegie Tech with more than ninety colleges represented and delegates from forty community and little theatres attending.

This trend of performances with large high audiences continued throughout the century, the only change that developed was the number of total plays performed throughout the year. In 1938 the number of main stage plays was reduced from nine to eight to lighten the load since the department staged as many as 100 plays each year.[5] In 1969, the number of main stage productions was reduced to four per year; the number still presented. However, the department also sponsored many other plays in smaller venues such as the Studio Theatre. By 1939, it was estimated that there had been 140,000 spectators at the department's performances over in the first 25 years of its existence.[6]

Productions that are performed and open to the public continue to reach and touch the hearts of many people. The Drama Department has large numbers of faithful viewers that have been subscribers to the shows for many years. The current Head of the School of Drama, Dick Block, noted, "we have people that have been coming to see our shows for fifty years. We have a loyal audience." Long-term attendance is a clear indication of how devoted the regional audience was to theatre at Carnegie Tech. The public shows are arguably one of the primary ways that the drama school has reached out to the Pittsburgh community throughout the last century.

As early as 1927, President Thomas Baker wrote a letter to alumni praising the impact the drama program had on American theater. He explained how the Carnegie Institute of Technology's drama movement was far-reaching, citing the growth of a playhouse in Cleveland,

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[5] Schrader, 11-12.

[6] Kulby, "Carnegie Tech's Drama."

Ohio that was under the direction of a Carnegie drama graduate.[7] But despite the success of the drama program, one of the main criticisms of the department has been that that aside from putting on plays performed by its own students for the public, it did not do enough for the community. The department focused on presenting plays to develop all the allied arts in theatre, a goal originally set by Thomas Wood Stevens, the first Head, and this meant that many plays presented did not have popular appeal. The current Head, Dick Block, who has been at Carnegie Mellon for over twenty years, commented that in his early years "there was very little interaction with the community . . . and] we are often viewed as elitist." During the past several decades, however, there has been a greater effort on the part of the drama school to develop more community outreach programs.

One important means of outreach to the community was

Drama Education, which began in 1931. It was under Drama Head Elmer Kenyon (1931-1936) that the department offered teacher education courses for the first time.[8] These courses were in affiliation with the Department of Education in Harrisburg and the Public Schools of Pittsburgh, which enabled students to become certified to teach in secondary schools in Pennsylvania.[9] This was one of the first examples of a collaborative effort between the college and Pittsburgh to help the greater community.

In the past ten years Carnegie Mellon has seen more progress in the drama school's efforts to reach beyond its university walls to a different constituency. More specifically, it has started to focus on trying to reach and educate youth. One example of this would be the Growing Theatre outreach program developed in the past few years. This program is directed by

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[7] Fenton, 62.

[8] Schrader, 10.

[9] Schrader, 10.

Anne Mundel, coordinator of the Design Option and Drama School, and focuses on working with at-risk middle school children from Propel Charter Schools, helping them to gain self-confidence, creative awareness and learning how to work together and respect one another.[10] It is a mentoring program that brings these students together. In this initiative, Carnegie Mellon student mentors work with the children to help them write, produce and perform their own play. The students go through the same process an actor would after they have played the part of playwright and written their story; they have auditions, have to memorize lines and rehearse. The whole program is a seven-month process that concludes with performances for the children's parents, teachers and members of the Carnegie Mellon community.[11] The show is their own creation, and through this process the students are exposed to a supportive learning environment and will hopefully take away some of the virtues that are the intended goal of the program.

A program called "My True Voice, headed by Professor Natalie Baker, is another example of an outreach program that has involved collaboration between departments within the university and the outside community. This program is a collaboration between the Drama School and the School of Computer Science; more specifically, the Language Technologies Institute.[12] The goal of the program is to teach young students how to speak efficiently. The program actually parallels speech classes that drama students are required to take. Professor Baker has developed her own curriculum of the Standard American English Dialect, which she uses as a basis for the "MY True Voice."[13] The program is interactive, incorporating computer software that was originally designed to teach foreign languages developed at the Language

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[10] http://www.cmu.edu/growingtheater/mission.html
[11] http://www.cmu.edu/growingtheater/program.html
[12] http://www.cs.cmu.edu/hot/2000/05/mytruevoice.html
[13] http://www.cs.cmu.edu/hot/2000/05/mytruevoice.html

Technologies Institute (LTI) of Carnegie Mellon's School of Computer Science. The program was started in 2000, with thirty-two fifth graders from the Holy Rosary Elementary School located in Homewood, Pittsburgh. These students would demonstrate their improved speaking skills in a poetry reading at the Carnegie Mellon Drama School. The goal of the program is to help young students develop a clear, efficient manner of speaking.

Professor Baker has also found a way to incorporate and engage her full-time drama students in the process. She developed a sophomore drama course in 2000, Speech and Phonetics, Instruction and Outreach (SPIOC), which required students to act as speech coaches in an inner-city school environment. This was specifically designed for the "My True Voice" program.[14] She developed sets of exercises for the students to use while LTI Professor Eskenazi adapted her software to create a language teaching approach that detects and corrects pronunciation errors in elementary school students' speech. When asked about what she was most proud of about the program and how she felt it impacted students and the community, Baker said, "The ability of children to move beyond just repeating words learned in primary grades and to use complex words correctly in higher grades requires listening, writing and speaking skills. Through this project, the fifth-graders improve their speech, and the acting students learn by teaching the language exercises they have been taught." The program has grown in the past ten years and hopefully this outreach program will continue for many more decades to come.

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[14] Natalie Baker, Interview.

Holy Rosary students using computer software

Natalie Baker with Holy Rosary student

Throughout the years Carnegie Mellon has naturally developed close relationships with other groups, organizations and playhouses in the greater Pittsburgh area. In 1936, when Henry Boettcher became head, the drama department developed a close association with the Pittsburgh Playhouse.[15] There were many Playhouse initiatives throughout the 20th century, one of them being the Vanguard Theatre Project in 1962.[16] The project was started by two women, Miriam Cherin and Marcelle Felser, and their performances featured three young actors that were all trained at Carnegie Tech.[17] The goal of the theatre project was to "bring performance of good theater into the high schools of Pittsburgh and surrounding areas."[18] The sixties were also a time of re-shaping Pittsburgh in the so-called "Renaissance," and as the city started to change and develop, so did theatre and people's investments in it.

In 1963, the Rockefeller Foundation made an offer to support the arts in Pittsburgh. The goal was for a collaborative effort to be made between Carnegie Tech and the Pittsburgh

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[15] Schrader, 13.
[16] Lynne Conner, *Pittsburgh In Stages": Two Hundred Years of Theatre* (Pittsburgh: University of Pittsburgh Press, 2007). 153.
[17] Conner, 153-154.
[18] Conner, 153.

Playhouse to "bridge the gap between the university theatre and commercial theater…."[19] While this mainly meant putting on joint performances, it was an important step in bridging the gap between Carnegie Tech and the community. What came as the result was the Carnegie Tech-Playhouse Company, and they agreed to put on 11 plays between June and December of 1965.[20]

Today, the Carnegie Mellon Drama School maintains close relationships with the Benedum Theatre, the Pittsburgh Civic Light Opera and the Pittsburgh Cultural Trust just to name a few. The school's prestigious reputation has given it the opportunity to collaborate with some of these organizations. During most of the 20th century, collaborative endeavors between the University and the Pittsburgh community were sporadic, mainly because the arts scene has needed time to grow and develop over time. Furthermore, the University is fairly young, also needing its time to grow and flourish and get to a point where it was able to collaborate and contribute to the greater community.

Another example of a successful collaboration between the Carnegie Mellon School of Drama and the Pittsburgh Cultural Trust is the Pittsburgh International Festival of Firsts, which took place in October of 2004. This festival was a citywide 16-day event, including both performing and visual arts.[21] The former Drama School head, Elizabeth Bradley, was the artistic director for the festival. She said that this festival was a culmination of "a remarkable vision for the city of Pittsburgh."[22] The festival featured performing artists and groups from six different countries all over the world.[23]

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[19] Conner, 155.
[20] Conner, 155.
[21] http://www.pifof.org/about.shtml
[22] http://www.carnegiemellontoday.com/article.asp?Aid=127
[23] http://www.pifof.org/about.shtml

In 2008 the second Pittsburgh Festival of firsts featured world premiers from many artists and companies such as Rudesh Mahanthappa's "Samdhi: Diasporic Connections" and Dean Wareham and Britta Phillips' "13 Most Beautiful ... Songs for Andy Warhol's Screen Tests."[24] When describing the festival, Ms. Bradley said, "A festival of work from around the world, which showcases the most exciting emerging multidisciplinary performances to complement the mission of the Carnegie International visual art exhibition is a bold initiative that capitalizes on a creative synergy unique to Pittsburgh. It has been a privilege to curate a program that we believe will be as compelling as it is ambitious."[25]

This project has been able to bring together people from the university as well as people in the community and help create cultural awareness by bringing performers to the festival from all over the globe. It is a great example of a successful collaborative effort between Carnegie Mellon and the community, more specifically the Pittsburgh Cultural Trust. It has helped to further develop Pittsburgh's rich art culture and can be seen as a window into the future: a century in which outreach plays a crucial role and collaborative efforts become a priority.

Another recent collaboration has been between the school of drama, the Pittsburgh CLO and the ASCAP foundation along with Broadway composer Stephen Schwartz (a 1968 CFA grad) to develop new musicals as a part of the drama school's New Works Program.[26] The program encourages the development and refinement of new works of the American musical theater. The idea is to host a workshop where there would be a staged reading of the new work to

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[24] Carter, Alice. Pittsburgh Tribune Review: *Sunday, May 18, 2008.* http://www.pittsburghlive.com/x/pittsburghtrib/news/specialreports/250-anniversary/s_567948.html

[25] http://www.carnegiemellontoday.com/article.asp?Aid=127

[26] http://www.ascap.com/playback/2007/fall/action/pittsburgh_carnegie.aspx

a group of selected invitees. This collaborative effort started in 2001.[27] This program allows people from different disciplines related to performing arts production such as writers, actors and composers to come together and collaborate on new works. The resources provided by the school of drama and the Pittsburgh CLO made this possible.[28]

While we have seen a trend towards increased outreach programs and collaborative efforts in more recent years, the seeds for these developments were planted in the early and mid 20th century. The reputation of the drama department had to develop in order for large-scale projects to take place. So while the "elitist" attitude may have been looked at negatively or prevented collaboration at times in earlier years, it actually helped to enable the drama department to have successful outreach programs in more recent years. Although they may have been scarce, there were still efforts made to bridge the gap between the school and the community with public performances beginning at early as 1914, education classes first offered in 1931, and relationships between the school and various theatre companies in Pittsburgh such as the Pittsburgh Playhouse. In the future Carnegie Mellon expects to see its relationships between the school of drama and the greater Pittsburgh community strengthen even further.

Art

The Carnegie Mellon School of Art was founded in 1912 as a part of the original College of Fine and Applied Arts at the Carnegie Institute of Technology.[29] The school was the first comprehensive arts teaching institution in the United States and was one of the first colleges to give credibility to the arts as a serious academic discipline. Since very early on, the school

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[27] http://www.ascap.com/press/2008/0924_bubbleboy.aspx

[28] http://www.ascap.com/press/2008/0924_bubbleboy.aspx

[29] Brignano, Mary. *The Associated Artists of Pittsburgh 1910-1985: The First Seventy-Five Years.* Pittsburgh, Pennsylvania, 1985. 18.

focused on ways to diffuse art into the greater community and incorporate community involvement into the student's curriculum. There has also been inevitable interaction between the University and Pittsburgh because many well known Pittsburgh artists have taught or come out of Carnegie Tech and Carnegie Mellon, including Samuel Rosenberg who founded the art department at Carnegie Mellon and Andy Warhol.[30] Furthermore, the Carnegie Mellon School of Art has developed long standing relationships with local organizations such as the Associated Artists' of Pittsburgh. In addition, its own faculty members have created organizations of their own such as One Hundred Friends of Pittsburgh Art.[31] So whether directly or indirectly, the Carnegie Mellon art program has helped to spread art throughout the Pittsburgh community and beyond. This has been done through three main mediums/initiatives: via the students' curriculum (education), through its world famous graduates that are known for their work in and about Pittsburgh, and also through fostered relationships with or creation of local organizations.

An outreach education program that dates back to over 40 years ago but that still continues today at CMU is the School of Art pre-college program. Similar to the School of Music pre-college program, the aim of the Art School is to "introduce high school students to the spirit and substance of the School of Art's undergraduate curriculum."[32] The goal is to help prepare them for a college-level art program and give them a feel for what it would be like to be a student. The school sponsors two programs, one that runs for six weeks in the summer like the school of music's pre-college, and another that runs throughout the school year on Saturday

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30 http://www.tfaoi.com/aa/3aa/3aa607.htm

31 Brignano, 21.

32 http://www.art.cfa.cmu.edu/programs/academic/pre-college

mornings.[33] The students study with professional artists, and gain creative insight as well as artistic growth and intellectual development. There are usually only about 15 students in the program, which allows for more one on one time with the professors. This program is an example of how the School of Art has focused on expanding education efforts into the Pittsburgh area, specifically targeting its youth so as to help foster their growth. Furthermore, because this program dates back about 40 years, it shows that the art school has made educational outreach a priority for several decades now.

Another focus on educational outreach has been through Carnegie Mellon's art students' curriculum. The curriculum of Carnegie Mellon's art program is unusual in its "intentional engagement with communities outside of the university on local, national and international levels."[34] For example, juniors in the program are required to take a class called Art in Context, which they have to research, engage and respond to a particular group, organization or audience within the Pittsburgh community.[35] The class has been so successful that is has gained coverage in the local press. In the April 2007 issue of the *City Paper*, for instance, the professor of the class noted, "For years I've been creating site-specific work, and I thought instead of teaching in a classroom at a university, we should get the students out into the city."[36] He wanted the students to engage with the space as well as the people in the neighborhoods in surrounding communities. The result of this course has been the development of many relationships in Pittsburgh with various organizations such as the Humane Society and Pittsburgh Vision Services.

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33 http://www.art.cfa.cmu.edu/programs/academic/pre-college

34 http://www.art.cfa.cmu.edu/philosophy/school-of-art-overview

35 http://www.art.cfa.cmu.edu/philosophy/school-of-art-overview

36 http://www.pittsburghcitypaper.ws/gyrobase/Content?oid=oid%3A27223

Another part of the curriculum that involves community outreach is the graduate program. All graduate art students have to complete what are known as Community Affiliation Projects, in which they engage in projects that involve the community. These projects are wide ranging. For example, one art student completed a residency at a Pennsylvania state penitentiary, which then led to him curating an exhibit for the City Theater.[37] Another student had a much more personal project, where he worked with a blind Gospel singer that performed in the streets of Oakland. The student, Todd Pavlisko, helped the singer record a CD that he could distribute to his friends and family, and he was then invited to campus to sing at Todd's thesis exhibit gallery talk in the Miller Gallery.[38] Other projects have included painting murals in various areas of Pittsburgh, after school programs at area elementary schools, and an environmental art exhibition at the Pittsburgh Center for the Arts.[39] Through this course, students can expand the parameters of art making through direct involvement with diverse communities, sites, and conditions and develop imaginative and productive relationships with them. These projects help students gain a better understanding of what it means to be an artist in a community as well bridge the gap between the university and the Pittsburgh community.

The School of Art has also been involved with the community through its faculty and students. The school has produced many well-known and famous artists. Numerous artists emerged from the art program at Carnegie Mellon, and some of them were and still are known for their work in Pittsburgh. Two examples of such artists are Samuel Rosenberg and Andy Warhol. Samuel Rosenberg was the founder of the art department at Carnegie Institute, and his

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[37] http://www.art.cfa.cmu.edu/philosophy/school-of-art-overview
[38] http://www.art.cfa.cmu.edu/philosophy/school-of-art-overview
[39] http://www.art.cfa.cmu.edu/philosophy/school-of-art-overview

"painting and teaching career spanned nearly six decades of the twentieth century."[40] From about 1930-1952, Rosenberg focused his work specifically on Pittsburgh. During this decade his work focused on Pittsburgh's Urban Landscape and the American scene.[41] Rosenberg built a name for himself when other artists were leaving Pittsburgh. Many artists were traveling abroad in the early 20th century, but Rosenberg stayed in Pittsburgh and built his reputation in the city, soon becoming known as "the "soul" of Pittsburgh art."[42] Rosenberg was especially known for his extremely moving pictures of the depression era in Pittsburgh, one example being his painting *God's Chillun,* which he painted in 1934. This was one of his many paintings that depicted the harsh socioeconomic conditions for people living in the inner cities of Pittsburgh. The painting specifically portrays an "incident of African-American street life in Pittsburgh's Hill District."[43]

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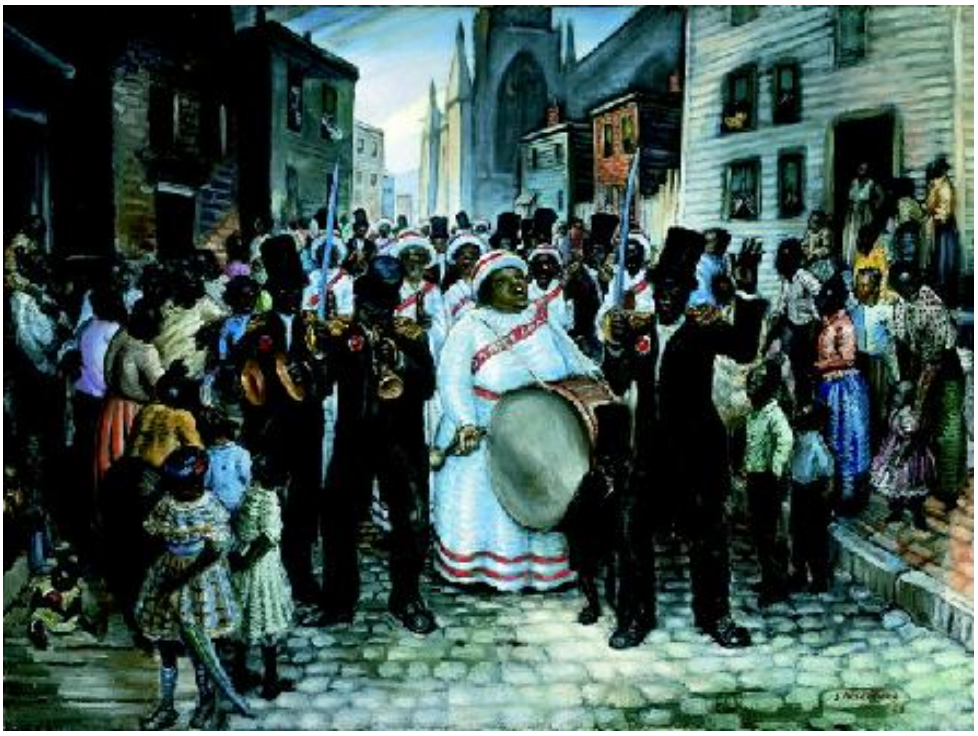
[40] http://www.tfaoi.com/aa/3aa/3aa607.htm
[41] http://www.tfaoi.com/aa/3aa/3aa607.htm
[42] http://www.tfaoi.com/aa/3aa/3aa607.htm
[43] http://www.artistsofthecommonwealth.org/artists/rosenberg.html, Brigano, 22.



Samuel Rosenberg (1896-1972) *God's Chillun,* 1934

Rosenberg was also recognized by the Associated Artists of Pittsburgh, an organization that allows local artists to display their work.[44] Rosenberg had great influence as a teacher in his many years at Carnegie. He taught several young painters who became world famous, among them Andy Warhol.[45] Warhol was a Pittsburgh native born to immigrant parents and lived in the Oakland area of Pittsburgh.[46] He was admitted to Carnegie Tech in 1945, but had a hard time fitting in and struggled as a student. Warhol failed his courses and got kicked out of Carnegie Tech, but teachers like Rosenberg, who recognized his talent, helped him to re-enter the school based on a very impressive portfolio.[47] Andy Warhol went on to become the "prince of pop art

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[44] Brigano, 22.

[45] http://www.tfaoi.com/aa/3aa/3aa607.htm

[46] http://www.pbs.org/wnet/americanmasters/episodes/andy-warhol/a-documentary-film/44/

[47] http://www.famouspainter.com/andy.htm

and culture," known for his screen prints of pop culture such as the reproduction of Campbell's Soup Cans. [48]

Andy Warhol, *Campbell's Soup Cans,* 1962

While Andy went on to travel the world, his roots remained in Pittsburgh where he studied and grew as an artist and lived for a large portion of his life. His impact on Pittsburgh has been long-standing. Both Warhol and Rosenberg made great contributions to the art culture in Pittsburgh, adding to its prestige and attracting visitors from all over the world to the city to view their art. A more recent example of how these artists continue to impact Pittsburgh would be the Andy Warhol Museum, which opened in Pittsburgh in 1994. This museum contains the largest collections of Warhol's work, and attracts people from all over the Pittsburgh area and the world. Colleen Russel Criste, the Warhol's deputy director has said of the museum and of Andy Warhol, "people the world over clamor to see it. So many, in fact, that the art of Andy Warhol

[48] Brigano, 41.

just might be Pittsburgh's biggest cultural export, ever."[49]

While Pittsburgh's artists may be viewed as indirect links between Carnegie Mellon and the Pittsburgh community, they are links nonetheless that help to bridge the gap between the two. The Art School has been able to provide the resources for artists to learn and express themselves creatively so that they can grow and use what they have learned in their professional life. Rosenberg and Warhol have become common names in the art scene in Pittsburgh, and it is clear that Carnegie Mellon played a role in both of their lives helping to foster their individual growth and provide opportunities for them to teach or display their work. The art program has been a vital part in giving artists the opportunity to learn and grow in a high ranked environment, and as a result many artists have emerged that have greatly contributed to Pittsburgh's art culture in the past as well as today.

The Carnegie Tech and Carnegie Mellon Art School has developed relationships with organizations in Pittsburgh over time, one of its earliest being with the Associated Artists of Pittsburgh. The organization currently has 500 members and is the largest visual arts organization in the Pittsburgh region.[50] Andy Warhol and Samuel Rosenberg were both past members of the organization.[51] The organization was founded in 1910, and its goal was and remains today to foster a love of the fine arts and to advance art in the region by providing opportunities for artists to display their works.[52] They have also had a mission to "aid citizens in a higher appreciation of art."[53] People are admitted to the organization based on the quality of

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[49] http://carnegiemuseums.org/cmag/feature.php?id=66
[50] http://www.aapgh.org/
[51] http://www.aapgh.org/
[52] http://www.aapgh.org/about.html
[53] Brigano, 18.

their work, which they submit to a board of directors for review.[54]

Tech's School of Fine and Applied Arts helped with the development of Associated Artists because as mentioned earlier, it gave "credibility to the arts as a serious academic discipline."[55] Through the years, members from the art school's faculty have exhibited with the Associated Artists as well as served on its board of directors, ultimately helping to pass on knowledge to future members.[56] As briefly mentioned before, Rosenberg exhibited with the Associated Artists in 1913, approximately 10 years before he started teaching at Carnegie Tech. He won first place in the 1920 exhibition for his piece "Portrait", when he was only 17 years old.[57] Many Carnegie Tech art students had, by this time, begun to make an impact on the annuals.[58] Carnegie Tech's faculty also had involvement with the group, one example being Frederic Charles Clayter who was a professor of industrial art at Carnegie Tech in the 1930s. In 1938, he was elected President of the Associated Artists. His objective while serving as President was to "make Pittsburgh more conscious of the great talents in its midst."[59]

Students from Carnegie Tech that participated in the Associated Artists exhibitions received a major career boost. In 1949, a Carnegie Tech art student, Sgt. Philip Pearlstein, has three of his own war-themed paintings in the show, one of them entitled "The Fighting is 'Finito,'" which he did in 1945.[60] While Pearlstein did not win any awards, he got the opportunity to participate in a professional exhibition in a major museum and have his work

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[54] http://www.aapgh.org/about.html
[55] Brigano, 18.
[56] Brigano, 18.
[57] Brigano, 22.
[58] Brigano, 22.
[59] Brigano, 34.
[60] Brigano, 41.

displayed and critiqued by other artists.[61] It was a challenging, invaluable experience. The Associated Artists stay strong today, and Carnegie Mellon continues its relationship with the organization. In the summer of 94', the Regina Gouger Miller Art Gallery hosted the Associated Artists of Pittsburgh's 94th annual exhibition.[62]

Another organization that was founded in 1916 that was inspired by the Associated Artists is the organization One Hundred Friends of Pittsburgh Art. John L. Porter, who was chairman of the Board of Trustees of Carnegie Institute of Technology and a member of the Fine Arts committee of Carnegie Institute, founded the non-profit organization. Porter really wanted to encourage "all art development in the city."[63] The goal of the organization was to receive donations from sponsors that would be used to purchase paintings from the Associated Artist's Annual Exhibition. The purchased paintings would then be donated to the Pittsburgh Public School. Porter is another example of a person who provided a link between the University and the Community. As a Carnegie faculty member, he was able to get donations from the school for his project and help to enrich the lives of students in the Pittsburgh schools as well as make a great contribution to the community. [64]

The Carnegie Mellon School of Art has continued to grow and develop since 1912 and has helped to foster the growth of Pittsburgh artists since the early 20th century. They gave had a long lasting impact on the art scene and culture in the city. The School of Art has made it a point to emphasize community involvement as a part of the curriculum, examples which are more prevalent in recent years. The work of artists such as Andy Warhol and Samuel Rosenberg

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[61] Brigano, 41.
[62] http://www.cmu.edu/PR/releases04/040625_aap.html
[63] Brigano, 21.
[64] Brigano, 21.

continue to impact the city today, attracting people from different places to come view or study their work, adding to the prestige of both Carnegie Mellon and the Pittsburgh's reputation as a city of talented artists. The university has been able to aid the development of organizations such as the Associated Artists of Pittsburgh since their founding, and has also hosted the organization on the campus. The school has also been associated with philanthropists such as John Porter, who have helped give back to the community in a major way. The Art School at Carnegie Mellon has been one that has both directly and indirectly influenced Pittsburgh in a major way.

Music

Carnegie Mellon's School of Music is one of the largest and most prestigious of conservatory programs in the USA, drawing the most famous international performers to its doorstep and sending its graduates on to the world's most famous orchestras.[65] The Carnegie Mellon School of Music has a long history, dating back to the founding of the College of Fine Arts in 1905. From its beginnings the School offered concerts open to the public.[66] According to Professor Marilyn Thomas, former Head of the Department (1988-96) and a current professor in Theory and Composition in the School, there are three main components of the Music program that have deep roots in the community. These include artistic, outreach, and educational programs. Artistic programming entails CMU's relationship with the Pittsburgh Symphony. Outreach and educational programming encompasses the Community Outreach Program including the Community Preparatory School as well as other educational outreach programs such as the Artistic Bridge with the Pittsburgh Symphony.

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[65] http://music.cmu.edu/people.php

[66] Fenton, Edwin (2000). *Carnegie Mellon 1900-2000: A Centennial History*. Pittsburgh: Carnegie Mellon University Press

It is important to note that the relationship of CMU to the Pittsburgh Symphony. The "incentive for the establishment of a permanent professional orchestra in Pittsburgh was provided when Andrew Carnegie donated to his adopted city the imposing Carnegie Library building, complete with its sumptuous music hall."[67] In the late 19th century, residents of the Oakland area in Pittsburgh became increasingly interested in symphonic music among other aspects of high culture.[68] As the city started to grow, and people's interests in the arts increased, it provided a great opportunity for the community's music culture to develop and thrive. The Pittsburgh Symphony Orchestra was founded in 1895 as the resident orchestra of the Carnegie Music Hall, and quickly became the city's leading cultural force.[69]

Over the years, the relationship between the symphony and the university has grown. Since 1960, CMU faculty players have been members of the Pittsburgh Symphony Orchestra.[70] Currently in the music conservatory program, over 21 principal players with the PSO are on the Carnegie Mellon Music faculty. Guest artists from the symphony are invited to play at CMU and to give master classes to the music students. Guest conductors are also invited to perform and teach at Carnegie Mellon. For example, in 2004, the music legend and Principal Conductor of the PSO, Marvin Hamlisch, was invited to CMU to teach a master class. During this class, the students that were invited to attend got to perform two songs for the conductor and to get a personal critique from him. As a result, two students who stood out were invited by Hamlisch to

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[67] Schmalz, R.F. *Paur and Pittsburgh: Requiem for an Orchestra*, American Music Vol. 12, No. 2 (Summer 1994), 125.
[68] Conner, 97.
[69] Conner, 97.
[70] Interview Marylin Taft Thomas.

perform in the Pittsburgh Symphony Orchestra's 2004 Pittsburgh Pops series.[71] Many Carnegie Mellon Music students in the past as well as today have played or performed with the PSO either during their studies or post graduation.

Another dimension of Carnegie Mellon's relationship with the PSO is that of showcasing the talent of CMU music students who do composition through an outreach reading session of their work. The session is designed to be a chance for four student composers (usually post-graduates) to have their works played by a top-level orchestra.[72] In 2005, Carnegie Mellon, Duquesne, and the University of Pittsburgh teamed up with the Pittsburgh Symphony to present the sequel to a Festival of Contemporary Music called the "U3II" which highlighted their faculty and students. New to the festival was a reading session of music by student composers. The President of the PSO noted that it was important for the Symphony to participate in this outreach effort and "to provide a safe place for young musicians to learn their craft."[73]

A collaboration such as this shows that Carnegie Mellon is devoted to providing its students with the best opportunities to showcase their talents and creativity as well as get exposure to the music world beyond Carnegie Mellon's walls. Similar to the School of Drama, the School of Music puts on performances that are open to the public, mainly concerts. Currently over 200 programs a year are performed during the academic year, all of which are open to the public.[74] Carnegie Mellon also brings people from the greater Pittsburgh Community to its campus, inviting them to perform or teach or in some cases collaborating with them to

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[71] http://www.cmu.edu/PR/releases04/041012_pops.html

[72] Interview MTT

[73] (Pitt. Tribune-Review p. 1)
www.pittsburghlive.com/x/pittsburghtrib/s_313029.html

[74] Interview MTT.

provide a program that is mutually beneficial for both organizations. For example, CMU has hosted the Pittsburgh Concert Society for approximately 25 years.[75] The goal of the Pittsburgh Concert Society, founded in 1943, is to help promote local musical talent in Pittsburgh by giving them an opportunity to perform in concerts and to offer them financial support. They aim to discover and assist musicians who are living or getting a musical education within a 75-mile radius of Pittsburgh.[76] When CMU hosts the PCS, young performers are selected through competition and are presented in concert and are given an honorarium. Their concerts are held in our facility.[77] This effort helps promote young performers. Another group that is hosted at Carnegie Mellon via the School of Music is the River City Youth Brass Band. Carnegie Mellon is partnered with the band and provides a couple different services to them.[78] The band was founded in 1986, and gives talented youth the opportunity to hone their craft by learning from and being guided by professional musicians.[79] The band is open to students in middle school and high school in the Western Pennsylvania region that play either brass or percussion instruments.[80] This freestanding ensemble for kids is housed in Carnegie Mellon's School of Music facility.

Another unique aspect of this partnership is a pre-college program that CMU offers to the senior students of the Youth Brass Band. It is a six-week summer program that is designed for high school juniors and seniors, the goal of which is to give the students a feel for what it would

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[75] Interview MTT.
[76] http://www.pittsburghconcertsociety.org/about.php
[77] Interview MTT.
[78] http://www.rcbb.com/ybb.php?req=8&s=87
[79] http://www.rcbb.com/ybb.php?req=8&s=34
[80] http://www.rcbb.com/ybb.php?req=8&s=34

be like to study music at Carnegie Mellon.[81] The students "live on campus, take classes with conservatory professors, play, rehearse, perform and enjoy the freedom of college life in a safe environment."[82] These students are automatically accepted into the pre-college program and are also eligible for acceptance into the Carnegie Mellon Music program.[83] Marilyn Taft Thomas says the program helps inform kids what it means "to throw your hat in the ring." This partnership is a great example of how the Carnegie Mellon Music School has helped give opportunities to talented youth in the greater Pittsburgh area.

A more recent partnership has been that of the Carnegie Mellon Music School is with Attack Theatre, a company founded over ten years ago that combines "modern dance, original live music, multimedia and interdisciplinary art forms to present work in traditional and nontraditional spaces both nationally and internationally."[84] Attack Theatre is currently in its third year as the Dance Company in Residence with Carnegie Mellon University's School of Music teaching movement/dance for opera students.[85] The company conducts residencies in creative dance and movement, offering master classes to students in these areas. The company strives to educate by integrating the artistic process with the community to achieve successful outreach programs. Carnegie Mellon music students currently get to experience this first hand.

Community Outreach Through Education:

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[81] http://music.cmu.edu/precollege/index.html
[82] http://music.cmu.edu/precollege/index.html
[83] http://www.rcbb.org/ybb.php?req=8&s=89
[84] http://www.attacktheatre.com/company
[85] http://www.attacktheatre.com/2008October

Members of College of Fine Arts faculty, as well as graduate students, do research that reaches into the community. For example, Frederick Douglas Steven, in his 1981 dissertation, arrived at the conclusion that the "implementation of a course of study developed through students compositions in the popular music genre with the use of laboratory pianos is a viable means of increasing the musical knowledge of inner-city children. Natalie Ozeas, the associate head of the school of music has a research grant funded by the Grable foundation, an organization that supports programs that help children develop by improving educational opportunities in the Pittsburgh region Her program works in public schools in Wilkinsburg and other poverty stricken areas, to help develop programs with river city brass bands to place pianos in the schools. In her interview, Marylyn Taft Thomas noted, "this program really brings music to those schools that otherwise wouldn't have it." The project started focusing on elementary schools, but has since branched out to include middle schools and high schools as well.[86]

These seemingly small improvements have had a huge impact on the community. For one thing, students are more eager to come to school, something that is important in urban communities where attendance is a problem. Students are given a creative outlet, not only learning how to play the keyboard but also being able to experiment and compose their own music.[87] Recitals are also put on so that students can showcase their talents and what they've learned to their parents and teachers. "It's so vitally important for music to be part of the curriculum in every school," said Natalie Ozeas, head of the program. "We don't deny that

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[86]http://www.yamaha.com/yamahavgn/CDA/ContentDetail/PressReleaseDetail/0,,CNTID%25253D553419%252526CTID%25253D560001%252526CNTYP%25253DNEWS,00.html

[87] http://www.cmu.edu/homepage/innovation/2007/spring/a-musical-experience-.shtml

reading and math are important, but they are not enough."[88] Carnegie Mellon makes sure to emphasize the importance of the arts in the lives of students. A collaborative effort such as this demonstrates the impact that music can have in the community. It also shows how the community continues to value music and arts culture in general.

The community education outreach program that has had the most significant impact on the community is the Carnegie Mellon Music Preparatory School. This program is designed to teach elementary school student piano and strings, and dates back to at least 1960.[89] This program is one of the most distinguished programs in the community, and is currently directed by Hanna Li, Professor of Piano and Piano Pedagogy in the School of Music. The preparatory school runs through the Music Extension branch of the Carnegie Mellon Music School. The School trains talented Pittsburgh-area children ages 4 to 18 to achieve "technical, academic and artistic proficiency in music."[90] For many years, the program has had students playing at prestigious venues such as Carnegie Hall in New York, sometimes as young as 8 or 9 years old.[91] Often, the children in the program enter world known, difficult music competitions and almost always win or place. This has remained true for decades. For example, this past summer, 8 students from the Music Preparatory School entered the 52nd World Piano Competition, each of them winning top honors including gold silver and bronze medals. One student in the 7th level

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[88] http://www.cmu.edu/homepage/innovation/2007/spring/a-musical-experience-.shtml

[89] Interview, MTT.

[90] http://music.cmu.edu/preparatoryschool/Li/HonorLi_bio.html

[91] Interview, MTT.

even won with the grand prize.[92] To be a part of the Carnegie Mellon Preparatory school program is an honor indeed.

The Music school has also extended its outreach into its graduate studies program. Since about 1997, graduate students in the Masters degree program in music have been required to present an outreach concert for the community as a part of the degree program.[93] These concerts can be put on anywhere including nursing homes, hospitals and schools in impoverished areas. Sasha Launer, a student, is now in charge of outreach programs for the school, which serves as a liaison between the Music School and its students to help facilitate students going out and doing outreach programs.[94]

The last two presidents of Carnegie Mellon University have also helped these outreach efforts considerably, especially the current president, Jared Cohen, who has helped to shift the school's focus more towards the arts and community involvement. Leadership comes from the top, and if the leader sends the signal that they value community outreach, then more will be done to ensure that it happens. In conclusion of her interview, Marilyn Taft Thomas said of community outreach, "it is part of our profession. As musicians, we try to encourage social consciousness."

As we have seen, the Carnegie Mellon School of Music has been heavily involved with the community through outreach, education, collaboration and hosting programs. The most long-standing of these relationships have been that with the Pittsburgh Symphony Orchestra and the Music Preparatory School, both of them dating back to about 1960. Before that, public performances were the main form of community involvement with the school. Outreach has

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92 http://www.cmu.edu/news/archive/2008/July/july24_pianostudents.shtml
93 Interview, MTT.
94 Interview, MTT.

certainly grown much more in recent years, as was the case with the Carnegie Mellon School of Drama. It has taken time for relationships to foster and for resources to become available to the school. Now that its reputation has been built up to be one of the best Music conservatory programs in the nation, a lot more becomes possible.

Carnegie Mellon and the Pittsburgh Public Schools

ROSS MacCONNELL

THIS chapter will trace the relationship between Carnegie Mellon University and the Pittsburgh Public Schools from the late 1950s to the present. To illustrate important trends in the university's outreach work, it is divided into three main sections: "The Early Years," focusing on the late 1950s through the 1960s, "The Middle Years," focusing on the 1970s and 1980s, and "The Contemporary Era," focusing on the period from 1990 to 2005. Case studies will illustrate the advantages partnerships offer to both parties as well as barriers to the success of school-university partnerships. Throughout the paper, the importance of personal relationships – between individuals at the university and at the schools – in fostering cordial and productive partnerships will be emphasized.

Throughout Carnegie Mellon's history with the Pittsburgh Public Schools, perhaps the most important question for faculty members who want to engage in collaborative work with the schools has been and continues to be: Why should the university, "a private institution with no Department or College of Education," involve itself in such work.[cclii] With a highly talented student body, an esteemed faculty, and cutting-edge facilities, Carnegie Mellon University clearly has resources that could be used to benefit K-12 schools. Even so, in order to obtain widespread administrative support, interested faculty must

frame collaboration in terms of benefits to the university. Given the importance of this question, the main arguments for school-university collaboration are set forth here. They are drawn largely from "A Report: Outreach from Carnegie Mellon to the Schools, K-12," published in 1993 by Dr. Edwin Fenton, a pioneer in the university's work with the Pittsburgh Public Schools. In this document, Dr. Fenton clearly demonstrates that collaborative work with the schools is not only philanthropic, although it can certainly benefit the schools immensely; it also serves the university, in that it provides students and faculty members with enriching learning experiences, helps the university build stronger and more diverse classes, and helps to strengthen its region.[cccliv]

Since the university began working closely with public schools in Pittsburgh during the early 1950s, the Pittsburgh Public Schools have benefited tremendously from the university's resources. The benefits of Carnegie Mellon's curricular research have predominantly "accrued in schools in the Pittsburgh area" and the public schools "have been particular beneficiaries of [the university's] outreach projects."[cclv] Starting in the early 1960s, university faculty members at the History and English Curriculum Centers – two of four curriculum centers at the Carnegie Institute of Technology funded by the Carnegie Corporation of New York – designed, refined, and implemented innovative courses for advanced students and slow learners in the city schools with considerable (and measurable) success. Miscellaneous curriculum projects have since impacted thousands of students of a wide range of ability levels, ethnicities, and socioeconomic statuses in the city schools.

In addition, district students have benefited from direct and personal relations with undergraduate and graduate students in various tutoring and mentoring programs and district teachers have benefited from close work with Carnegie Mellon faculty members in curriculum planning projects and in an array of professional development initiatives. Significantly, grants procured from public and private sources by Carnegie Mellon faculty "have pumped millions of dollars into projects connecting the university to the schools" and have led directly to the installation of new computers, keyboards, and other expensive technologies in city schools.[cclvi]

While the schools are undeniably the most obvious beneficiaries of school-university partnerships, students and faculty at the university also benefited, both directly and indirectly. Carnegie Mellon students who have partaken in school outreach projects have reported that they were "among their most valuable learning experiences" at the university.[cclvii] Moreover, many of those who have engaged in after school programs, like the East End Tutoring Program, have kept journals that "testify graphically to the two-way learning that takes place in tutoring enterprises."[cclviii] Finally, university students have benefited indirectly from hands-on work in the schools, because through it, these often privileged "future professionals and civil leaders" were confronted with the problems that plague American cities as they work with students for whom "drugs, gangs, drive-by shootings, and teenage pregnancy are facts of life."[cclix] Such civic education is of undeniable importance for university students.

Carnegie Mellon faculty members have likewise benefited (and continue to benefit) from work with the schools. Their outreach work with the secondary school students and teachers has often provided them with a better perspective on intellectual abilities of young adults that has led to them to adopt new teaching strategies in their college courses. As Dr. Fenton wrote in an article for *The School Review* in the summer of 1961, "Professors who know the public schools first-hand will be able to teach incoming freshman whose preparation and habits of mind they will understand; and if my experience is typical, professors will learn to be better teachers."[cclx]

In addition to its benefits to Carnegie Mellon students and faculty, university-school partnerships benefit the institution itself. Improving the Pittsburgh Public School district is aligned with the university's self-interests. As Judy Hallinen, the current director of the Leonard Gelfand Center (previously the Center for University Outreach), rightly maintains, a strong regional public school district is essential for a strong university that competes for the best students and professors.[cclxi] This is not the only institutional benefit reaped by working with the schools, however: such cooperation enables the university to recruit better prepared and more diverse freshman classes. Because many of Carnegie Mellon's academic outreach programs are intended to prepare local secondary students for the rigors of college-level work, these programs directly contribute to the increased

preparedness of Pittsburgh Pubic School District graduates who matriculate at the university. As the quality of freshman classes is improved, faculty "will be able – will in fact be forced – to upgrade the quality of [its] freshman courses."[cclxii]In addition, by reaching out to minority and disadvantaged students, the university can attract the diverse student body it desires. Clearly, school-university partnerships are "two-way streets with benefits flowing in each direction."[cclxiii]

Since its conception, Carnegie Mellon has prided itself on not being an ivory tower, but an institution that directly and positively impacts its community. The positive impact of school-university collaboration on the community is clear. Programs for advanced students enable "talented students to stretch themselves intellectually, a vital contribution to a society that depends on its best brains to progress economically and in the world arena."[cclxiv] Other programs provide students who do not intend to attend any post-secondary school with the skills necessary to be employable in an increasingly high-tech job market and "develop the knowledge and skills they need to become productive workers and constructive members of the community."[cclxv] When Andrew Carnegie put forth money for the establishment of the Carnegie Technical Schools, he did so to create an institution that would educate the children of Pittsburgh's mill workers. School-university partnerships do much to enrich the educations of local youths and as such, can be understood as the fulfillment of the university's original mandate.

Despite ample reason to support school-university collaborative work, until the late 1950s, the Carnegie Institute of Technology remained relatively uninvolved with the schools.[cclxvi] [In the early 1960s, however, cooperative activities between the university and the schools surged. This burst of activity can only be understood in light of national developments. While education had been an important pillar of the United States' Cold War defense policy since the mid-1950s, the Soviet Union's launching of Sputnik in 1957 induced "a national panic" about the state of the American education.

In response to mounting anxiety about an inadequate education system, the federal government and major corporations like the Carnegie Corporation and the Ford Foundation made significant amounts of funding available for school reform initiatives. Here the numbers are revealing: between 1952 and 1962, overall public education

expenditures increased by 160 percent and federal assistance to education increased six fold (in constant dollars) from 1958 to 1978.[cclxvii]

On the national level, the emphasis was placed on reform in science, technology, and mathematics education – subjects that were thought to be essential to the arms race with the Soviet Union. The focus on these fields not only drove innovation in them, but had a secondary effect as well: it compelled professionals in the humanities and the social sciences to assert the importance of their fields by initiating similar curricular projects, explicitly framing them as reform in the service of national defense. For instance, the New Social Studies Movement, of which Dr. Fenton was a key proponent, was founded in the late-1950s to "shift the emphasis [in secondary schools] from 'life adjustment' social studies to education for the brightest and to excellence through scientific inquiry," so as to prepare students to analyze the complexities of the modern world.[cclxviii] While the national context was propitious for the establishment of new and innovative relations between the Pittsburgh Public Schools and the Carnegie Institute of Technology, these relations could not have materialized had it not been for the entrepreneurial spirit of highly motivated individuals at both institutions.

The Early Years (1958 – 1969)

In June of 1958, Dr. Paul Ward, the head of the Carnegie Institute of Technology's Department of History, and Dr. Fenton, were invited to a conference for high school teachers of advanced placement (AP) history at Depauw University in Greencastle, Indiana. The advanced placement program was still new, having been started five years earlier by the College Examination Board, and at the time of the conference neither Dr. Ward nor Dr. Fenton knew much about it.[cclxix] Dr. Fenton admittedly entered the conference with a number of negative preconceptions about high schools: "They were playgrounds populated by athletes and barelegged drum majorettes; their faculties were underpaid, overworked, and poorly trained; in the big cities switch blades were more common that fountain pens; instead of serious intellectual effort, something called 'life adjustment' was the real focus of high school academic work."[cclxx] The compelling presentations made by high school

teachers at the conference, however, shattered Fenton's preconceptions about high school students and faculty and compelled him to take action.

At this time, there were no formal partnerships between the Carnegie Institute of Technology and the Pittsburgh Public Schools. Nevertheless, Dr. Fenton and Dr. Robert Slack, a professor in Tech's English department, with the support of university administrators, contacted Dr. Calvin Gross, the superintendent of the Pittsburgh Public Schools, and proposed a "program of co-operation between colleges and high schools to introduce advance-placement courses in history and English into selected Pittsburgh high schools."[cclxxi] After an hour and a half long meeting with the professors, Dr. Gross observed that while he fully supported the program, he lacked the financial resources to facilitate it.[21] Aware of new funding available for education reform work, Dr. Fenton and Dr. Slack applied for and received grants of $75,000 from the Fund for the Advancement of Education and $12,500 from the A. W. Mellon Educational and Charitable Trust.[cclxxii]With ample funding and enthusiastic support at both institutions, the first major partnership between the Carnegie Institute of Technology and the Pittsburgh Public Schools of the modern era was implemented during the spring semester of 1959. Although the partnership was based in Pittsburgh, its aims were broader: the program leaders sought to develop AP courses that would be used throughout the country.[cclxxiii] This is characteristic of most subsequent Pittsburgh Public Schools-Carnegie Mellon partnerships: the intermediate goal is the improvement of the conditions in the Pittsburgh Public Schools, but the ultimate goal is the creation of a program or product that would be used on a national scale.

An official document succinctly summarizes the five steps that individuals from Carnegie Tech and the Pittsburgh Public Schools took to complete the project:

> During the spring semester of the 1958-59 academic year, two Tech professors and two Pittsburgh high-school teachers began to plan syllabi and choose reading materials for the proposed-college level literature and composition course in English and the European and American history courses. In June, the teachers to be involved in the program attended the College Board's subject conferences in history and English. During the month of July, these same teachers from high school and college met at Tech for a one-month seminar to complete the plans for the courses, to become more familiar with the subject themes, and to examine techniques. In

> September, 1959, where four Pittsburgh high schools initiated college-level courses, a one-year teacher exchange began. Two high-school teachers joined the Tech faculty on a part-time basis, and two-tech professors taught at Taylor Allderdice High School. One of the latter [Dr. Fenton] became a full-time member of the high-school faculty. During the entire academic year, the Tech faculty and the high-school teachers met periodically to compare progress and make additional plans.[cclxxiv]

As is clear from this description, the program required a great deal of mutual trust. The extent of the cooperation that the program entailed between the university and the schools was unprecedented and as such, the program quickly became the focus of much media interest.The teacher exchange, arguably the most standout component of the partnership, attracted particular attention in both the regional press and the national education journals, such as the respected *Social Education*. The structure of teacher exchange was simple: In September of 1959, Francis Rifugiato, a history teacher at Schenley High School, and Helen Hillard, an English teacher at Allderdice High School, were charged with teaching a section of the freshman European History and English courses at Carnegie Tech, while Dr. Fenton and Dr. Stack each taught AP classes in their respective subjects at Taylor Allderdice High School. The goal of the exchange was to provide project leaders from both institutions with a framework to develop the AP curriculums.

A report published jointly in 1962 by the four individuals who participated in the teacher exchange states, "In retrospect, we can say that no educational experiment in which we have engaged has operated more smoothly, and I am certain none has been more effective in the results obtained."[cclxxv]The March 1960 edition of the *Pittsburgh Teacher Bulletin*, the official publication of the Pittsburgh Teachers Association, was devoted entirely to the initiative and the document provides perspective on it from participants from both the university and the schools. Essays by Dr. Fenton, Mr. Rifugiato, and Judy Blank, a senior at Allderdice High School who studied European History under Dr. Fenton during the course's first year, laud the program and describe its benefits to university professors, high school teachers, and motivated high school students, respectively.[cclxxvi]

There is no doubt that the success of the teacher exchange program marked an auspicious start to new relations between the Carnegie Institute of Technology and the Pittsburgh Public Schools. In fact, for the next decade, the program would be referred to

frequently in proposals for new school-university initiatives as an example of the warm relations between the institutions. Although the teacher exchange was surely the most highly publicized component of the project, it was not the extent of the close work between the university and the district in its development. During the summers of 1960 and 1970, project leaders held twenty day summer institutes for AP course planning in history and English on the university's campus. The institutes, described by participants as "extended professional meetings," were attended by dozens of teachers as well as a handful of administrators and curriculum specialists from the district as well as a number of university faculty members and graduate students.[cclxxvii] Furthermore, high school teachers continued to take advantage of the Curriculum Centers' resources and work closely with university faculty, meeting frequently during the academic year to discuss and refine course content, during the four years the AP courses in English and history were in development.[cclxxviii]

Although performance on AP exams was strikingly uneven across district high schools during the first four years, everyone involved considered the program to be an overwhelming success. A project recap, written jointly by two key participants from the schools and two from the university, states, "College-level history and English courses have made a profound impact on schools in the Pittsburgh area—an impact which is only beginning to be felt. We are confident that a vigorous current of interest in the humanities has been set in motion in our secondary schools."[cclxxix] The program's regional impact did, in fact, continue to grow as the AP English and history courses were expanded to numerous other high schools in the Allegheny County over the next five years, a testament to the project's success.

The AP initiative's impact was not only local; it also had a significant effect at the national level. By 1961, roughly 3,000 copies of the course syllabi had been "circulated at request to teachers all over the country" and a number of similar university-public school programs elsewhere had been modeled on it. Furthermore, that summer, the National Advanced Placement History Conference was held at the university.[cclxxx] Clearly, the success of the AP program helped bolster the Carnegie Institute of Technology's national reputation at a leader in secondary school curricular work. In the context of the relationship between

the university and the school district, the most significant effect of the AP Program is that it opened up personal connections between the individuals at the university and the district that proved invaluable for future cooperative projects. Moreover, Carnegie Tech faculty affirmed their credibility to district administrators and the school board by working assiduously on the project.

Dr. Slack and Dr. Fenton were both quick to take advantage of their new relationships to launch new partnerships. In 1962, Dr. Slack and his colleagues in the English Curriculum Center, together with teachers from the schools, commenced a five year long program to develop a series of English courses for advanced students in grades ten through twelve, with financial support from the Cooperative Research Branch of the Department of Health, Education, and Welfare. The next year, Dr. Fenton embarked on an analogous project, funded by the same organization, for social studies. The structure of these ventures was explicitly based on that of the AP project. Moreover, the program leaders built directly on the amicable relations established between the university and the schools through the AP project. Many individuals involved in the Curriculum for Able Student Projects had previously worked with one another developing the AP courses. For instance, Dr. Fenton, Carnegie Mellon's co-director of the project's social studies component, taught AP European History with Helen M. Kiester, the district's co-director, at Taylor Allderdice High School during the development of that course.[cclxxxi] The prior collaboration between district and university personnel at all levels contributed to an atmosphere of mutual trust and respect, important for successful university-school partnerships.

Like the AP program, the Curriculum for Able Students project was a product of the Cold War drive to compete with the Soviet Union academically and, as such, it was developed specifically for high performing students. As noted, educational reformers at the national level focused principally on the natural sciences, compelling professionals in other fields to compete for top students. An early report on the Curriculum for Able Students frames the program as a direct response to the intensified efforts by science educators to create advanced new courses to draw the best students to the natural sciences. The authors write, "This development may well deprive history and the social sciences of able

scholars prepared to cope with the complex problems in human relations which characterize the modern world. To deal with these problems, able students need to develop the mode of inquiry of the historian and the social scientist to learn the generalizations which this mode of inquiry has validated through research."[cclxxxii] By incorporating new and previously neglected areas of study, such as political science, economics, and the history of the non-Western world, into the secondary school history curriculum and by shifting its focus from memorizing facts to interpreting documents, the project leaders sought to do to their field what their counterparts in the natural sciences had done.[cclxxxiii]

It was not only university faculty in the humanities and social sciences who engaged the schools during the early 1960s, however; mathematicians and scientists at the Carnegie Institute of Technology also became involved in the Pittsburgh Public Schools. Starting in January 1963, two years after the AP programs for English and history began, university faculty members, with grants totaling $110,000 from the National Science Foundation and the A. W. Mellon Educational and Charitable Trust, commenced work with teachers from the district to develop courses in biology, chemistry, and mathematics.[cclxxxiv] These programs built directly on the foundation established by the previous AP programs and were comparably fruitful: working in concert with Pittsburgh Public Schools faculty, the biologists established an introductory course for ninth grades and an AP course for juniors, the chemists wrote a introductory course for tenth graders and an AP course for seniors, and the mathematicians designed a capstone AP calculus course.[cclxxxv] After a summer workshop between district teachers and university faculty and graduate students, modeled after those held for the AP programs in English and history, these courses were piloted in four Pittsburgh public high schools in the fall of 1963.[cclxxxvi] Collaborative work between university faculty members in these fields and district teachers continued throughout the 1960s and resulted in a number of additional courses for able secondary school students in science and mathematics.[cclxxxvii]

Each of these programs, then, focused on high achieving students. Such students were carefully selected on the basis of I.Q. and SAT scores as well as prior academic performance by school administrators and funneled into them. As I have argued, this is

consistent with a national trend in secondary school curriculum development programs and embodied the Cold War emphasis on preparing America's best and brightest to take on the challenges posed by the Soviet Union. Although project leaders maintained that course materials for those programs could be adapted for general use, it is undeniable that advanced students were the program's intended beneficiaries. Thus, while heavily funded educational initiatives between Carnegie Tech and the Pittsburgh Public Schools during the early 1960s directly benefited the best public school students, they generally had few tangible effects on the majority of students. Many critics rightly maintain that federal government's education policy during the early 1960s – as manifested locally in the partnerships between the schools and the university – amounted to a "legitimization of the stratification or tracking of students based on perceived abilities."[cclxxxviii]

It is ironic that during this period, there was a simultaneous national drive for equity, "to alleviate the burdens of race, class, and gender in America."[cclxxxix]The spirit of this movement is explicit in the idealism of Lyndon B. Johnson's Great Society, which "rest[ed] on abundance and liberty for all [and] demand[ed] an end to poverty and racial injustice."[ccxc]Recognizing this, the Social Studies Curriculum Center at Carnegie Mellon University and the Pittsburgh Public Schools embarked on a joint effort "to develop a course in American history for slow learning junior high school students" in 1967.[ccxci] According to Dr. Anthony Penna, a Doctor of Arts student at Carnegie Tech during the 1960s who worked on the project under Dr. Fenton, the Slow Learners Project, as it was called, "represented one small piece of a larger national mosaic committed to changing the lives of the country's underclasses."[ccxcii]

The program built directly on the cordial relations established between the Pittsburgh Public Schools and Carnegie Mellon University through the previous projects conducted by the university's History Center over the previous decade. A group of eight graduate students at the Curriculum Center, under the supervision of Dr. Fenton, worked tirelessly throughout 1967 to research and develop a curriculum tailored to the needs of slow learning eighth graders. The relationships Dr. Fenton had established with individuals at the Pittsburgh Public Schools proved invaluable for forming a partnership with the district: according to Dr. Penna, Dr. Fenton served as the "negotiator with the

schools' bureaucracies, the department of history hierarchy, and his university colleagues."[ccxciii]

The Slow Learner Project received no direct funding from the federal government or any major corporations and compared to the programs for advanced students, it was a "bootstrap operation."[ccxciv] The Pittsburgh Public Schools paid the full salary of the project co-director representing the school during course development, even though he taught only two classes, and Carnegie Mellon covered the remainder of the project's costs, amounting to roughly $100,000.[ccxcv]

During the fall of 1967, four graduate students from Carnegie Mellon working on the project – Ivan Jirak, Allan Kownslar, Velveln Blackwell, and Sam Bryan – were assigned to teach classes and try out new materials in four Pittsburgh schools. The AP project's teacher exchange program and the mutual trust established surely facilitated this development. By the year's end, the Curriculum Center team had completed "a carefully constructed rationale for teaching social studies to slow learners."[ccxcvi] The document, entitled *The New Social Studies for the Slow Lerner: A Rationale for a Junior High School American History Course* was published by American Heritage Publishing Company in November 1969 along with "four short teaching films in which members of the group instruct students from the Pittsburgh Public Schools."[ccxcvii]In 1970, the materials were revised and renamed *The Americans: A History of the United States* and were distributed by Holt, Rinehart and Winston, Incorporated. Half of the royalties earned through the sale of the course went to Carnegie Mellon's Curriculum Center and the other half was divided between the nine members of the development team.[ccxcviii] It is significant that none of the proceeds went back into the Pittsburgh Public Schools, and individuals at the district have since remained critical of university-led projects that result in earnings for their directors. Nevertheless, over the next four years, Carnegie Mellon University and the Pittsburgh Public Schools continued to work closely together to develop four more year-long courses for slow learners in grades nine through eleven.

Although the designers of the Slow Learners Project have been sharply criticized for making overly broad generalizations about slow learners without paying sufficient attention to external socioeconomic factors that impact learning, it is a significant program

in the history of Carnegie Mellon University's relationship with the Pittsburgh Public Schools for a number of reasons. First, like the Able Students Curriculum project and the AP programs for math and science, the project built on the foundation of amiable relationships established between individuals at the university and the schools. Second, it conforms to the typical model of a program, in that it was developed in the Pittsburgh Public Schools but ultimately marketed on the national level. Third, it illustrates an issue in university-school partnerships that has recurred and proven to be highly contentious in subsequent collaborative projects: the Pittsburgh schools were effectively used as laboratories to develop and refine course materials which were then marketed and sold, with proceeds going entirely to researchers at university.

The Slow Learners Project was not the first initiative launched by the schools to reach out to disadvantaged students in the Pittsburgh Public Schools. Another program, the School-College Orientation Program of Pittsburgh (SCOPP), was established in 1964, largely by a $106,000 grant from the Carnegie Corporation of New York and preceded the Slow Learners Project by three years.[ccxcix] Unlike the AP and Able Learners Programs, the initiative targeted poor-performing students who had did not plan to pursue post-secondary education but who had nevertheless demonstrated academic potential. Pittsburgh high school counselors were asked to select students who had an I.Q. of 115 or higher (the same cut off for channeling students into the AP course and the Able Student Curriculum), had scored one or two years above grade level on the reading and math components of the Metropolitan Test administered to all students in eighth grade, and had "no serious physical or emotional handicaps," but nonetheless consistently earned Cs and Ds in school.[ccc] In short, the program designed to "light a fire under students whose grades were falling far below their academic potential."[ccci]

SCOPP built on relationship between individuals at the university and at the schools that were formed through the institutions' earlier collaborative projects. Referring to the recent projects between the university and the schools, the authors of an evaluation of the program's first year write:

> This history of mutual dedication to the enhancement of public education, forged in the area of work with the advantaged, motivated student, was now

> to be put to use in the solution of one of education's, and society's, most crucial problems, the salvaging of neglected intellects.[cccii]

SCOPP was designed to be a two-year program that took advantage of Carnegie Tech's resources to change participant's perspective on college. Students attended a Saturday program on the Carnegie Tech campus throughout the academic year as well as a six week, residential summer session, also on campus, where they were taught by both Pittsburgh Public School teachers and Carnegie Tech faculty. While earlier collaborative projects had focused chiefly, if not exclusively, on curricular work, SCOPP had a broader agenda: it did have an academic component, but it also had equally important social and cultural components, aimed at changing participants' perspectives about college and instilling in them an appreciation of "plays, operas, symphony concerts, art exhibitions, and meaningful motion pictures," respectively.[ccciii] Its academic component was also broader than prior curricular projects, because the program transcended disciplinary lines: students received instruction in math, biology, English, and starting in the program's second year, history. After its first two years and the graduation of its first class, SCOPP was considered a qualified success: while participants' grades did not improve as significantly as was hoped, only six of the original forty-two participants dropped out of school, and of the thirty-six graduates, thirty one were accepted to at least one college.[ccciv] Still, in an anonymous survey distributed to these graduates, many remarked that SCOPP had "changed their lives."[cccv]

The program impacted both the local schools in which it was carried out, but it also the national school reform scene. In 1966, after the graduation of the first class of participants, the Upward Bound division of the Federal War on Poverty launched a program that would "bring more than 23,000 youngsters to about 220 colleges this summer for the start of a two year-program almost identical to SCOPP's."[cccvi] SCOPP was thus subsumed by Upward Bound and was continued at Carnegie Tech (Carnegie Mellon after 1967) until 1968, when funding expired amidst a wave of national criticism.[cccvii] Although SCOPP is often remembered as a program exclusively for African American students, this was not the case. As one official report states, "it was expected that the

program would have a high proportion of Negro students in it but a definite effort was made to include white students who qualified."[cccviii]

SCOPP is important in the story of Carnegie Mellon's history of work with the Pittsburgh Public Schools for three major reasons. First, like the Able Scholars Program, the Math-Science Program, and later, the Slow Learners Program, it built on the relationships established between the university and the schools by the AP program. Second, it represented Carnegie Tech's first major outreach program directed, at least in part, to African American students in Pittsburgh Public Schools. Finally, the program served as a precursor to and a transition into the Carnegie-Mellon Action Project (C-MAP), a large-scale program for minority students launched by Carnegie Mellon faculty members during the late 1960s and through which the university remained engaged with the schools throughout the turbulent 1970s.

Before moving on to that decade, it is important to note that the programs highlighted thus far are only a select number of initiatives between Carnegie Tech / Carnegie-Mellon and the Pittsburgh Public Schools. Other important collaborative initiatives for pre-school and primary school students were led by individuals at the Margaret Morrison College, under the leadership of Dr. John Sandberg, a professor of psychology, and by instructors at Carnegie Mellon's art and music schools. Moreover, during the 1960s, the university's four Curriculum Centers ran teacher certification programs, and as such, many students taught briefly in the local schools. Nevertheless, the AP programs, the Curriculum for Able Learners project, the Slow Learners project, and SCOPP were chosen as case studies because they are major initiatives that clearly demonstrate how university faculty members can use the relationships developed in previous partnerships with the schools to initiate new ones and because they illustrate major national themes.

The Middle Years (1970 – 1989)

Carnegie Mellon University's involvement in the Pittsburgh Public Schools waned considerably during the 1970s. This was not the result of a single factor, but a complex conjuncture of circumstances, both national and local. To understand this development, it

is important to consider what was happening in the United States with regard to the Civil Rights Movement during the late 1960s. While much of the Civil Rights agenda had been achieved by the summer of 1967, the assassination of Dr. Martin Luther King Jr. in April 1968 radicalized the movement and social unrest gripped the nation.[cccix] Following the student protests at Columbia University that month, students at universities and secondary schools throughout the country organized and reacted to the injustice they perceived in their institutions and communities with unprecedented militancy.

The broader struggle for racial equity played out in the Pittsburgh Public Schools. Although the Supreme Court ruled in Brown v. Board of Education of Topeka that "'separate but equal' facilities in the field of education led to situations that were inherently 'unequal' [in 1954] and despite an order a year later to desegregate schools 'with all deliberate speed'," it was not until 1968 that the Pennsylvania school districts were forced to act.[cccx] In early February, the superintendent of the Pittsburgh Public Schools received a letter from the Pennsylvania Human Relations Commission that demanded the district submit a desegregation plan by July 1st of the next year. What was supposed to take seven months, however, took twelve arduous years. During that time, four superintendents submitted four desegregation plans to the school board, all of which were summarily rejected. Each of the four superintendents resigned upon theirs plan's rejection.[cccxi]

The rapid turnover of superintendents during the 1970s impacted Carnegie Mellon's relationship with the Pittsburgh Public Schools directly. The administrators at the district with whom Carnegie Mellon faculty had developed friendly relations were replaced with individuals from outside of the city, unfamiliar with the institutions' recent history of cooperation. To commence new partnerships, then, Carnegie Mellon faculty would have to form relations with and gain the trust of new people. In short, the superintendent and consequent administrative staff changes of the 1970s ruptured many of the important relationships made between individuals at the university and at the schools that had facilitated that last decade's collaborative work.

It also must be noted that the school board must approve school-university partnerships before they are implemented. During the late 1960s and early 1970s the mounting pressures within the district fell squarely on the board. It was not only grappling

with the desegregation issue and related dissention but other financial problems as well, such as a new teachers union and a major cut back in federal funds for education. In 1968, Pittsburgh teachers struck for and succeeded in achieving union recognition and began demanding higher salaries.[cccxii] To compound matters, in response to economic turmoil on the national stage, the federal government began to direct larger and larger amounts of money away from domestic programs, like those that had been used to fund school-university partnerships, to finance the war in Vietnam during the early 1970s.[cccxiii]

The withdrawal of federal aid in conjunction with demands for higher teacher salaries and increased energy costs had a major impact on districts like Pittsburgh that had become dependent on federal funds during the Johnson and Kennedy presidencies. By the mid-1970s, the Pittsburgh Public School District was in a bona fide financial crisis, operating with a budget deficit in excess of 10 million dollars.[cccxiv] In light of these pressures, the board had no choice but to cut costs and, "[w]ith fixed costs, energy, salaries, busing, etc. soaring, variable costs – instructional materials and school maintenance suffered."[cccxv] Unsurprisingly, the board became increasingly loath to approve costly school-university partnerships or to use experimental curricular materials developed at the university's Curriculum Centers.

Public support for the school board also suffered after its failure to pass a desegregation plan by the July 1st deadline. In 1969, the A.W. Mellon Educational Charitable Trust responded to the "widespread feeling in the community that the methods of selection, operation, and responsiveness of the existing school board should be reexamined in light of new pressures" – specifically those applied by the union, the demands of equity-minded students and parents, and the district's financial crisis – by forming "The Select Commission on the Public School Board" to investigate citizens' concerns.[cccxvi] Dr. Erwin Steinberg, then the Dean of Carnegie Mellon's College of Humanities and Social Science, was one of eight community leaders and the only representative from higher education selected to serve on the Commission.

In 1976, ostensibly in part because of the Commission's findings, the Pittsburgh School Board was changed from a "court-appointed, at-large board to an elected, district-based board with nine members," each representing a region of the city.[cccxvii] According to

the authors of *City Schools & City Politics*, districts were drawn so as to ensure at least two African-American representatives on the board.[cccxviii] This development had at least two major effects relevant to school-university partnerships: it delayed the passage of a desegregation plan, because the African-American representatives recurrently voted against plans that they believed did not go far enough, thereby prolonging the social unrest in the district, and it brought concerns about equity to the fore of board deliberations.

When Dr. Helen Faison, a leader in the Pittsburgh Public Schools since the 1960s and the first African-American as well as the first women superintendent, was asked about the main barriers to school-university partnerships, she cited the school board's focus on equity as a major obstacle.[cccxix] The programs administered jointly by Carnegie Mellon and the Pittsburgh Public Schools during the 1960s generally targeted specific schools at a time, not the whole district at once. After 1976, this practice became more controversial, as the board was reluctant to approve of projects that would benefit some (perhaps predominantly white) schools and not others. Further, because the board consisted of representatives from each of the city's nine "districts," it was often difficult to convince board members to support projects that would exclusively impact schools in districts other then their own.[cccxx]

In addition, the board's emphasis on equity complicated university-led curriculum development work; while Carnegie Mellon faculty could gauge the success of early programs by comparing students' success with that of students in a control group, the very concept of a "control group" became controversial. According to Dr. Faison, the new board expressed increased hostility toward school-university collaborative programs and the idea of using the district schools as test beds and district students as subjects for educational experiments.[cccxxi] Throughout the 1970s, proposed collaborative work was unlikely to be approved by the board unless it directly and immediately addressed the major problems plaguing the district.

While these developments do much to explain the drop off in school-university collaborative work during the 1970s, two other major factors must be considered: the dissolution of the New Social Studies Movement and what Dr. Penna calls "the rapaciousness of the textbook publishing oligopoly."[cccxxii] Dr. Fenton, one of the New Social

Studies Movement's leadings spokespeople, was also *the* central figure in the university's work with the schools during the 1960s. His work with advanced students in the Pittsburgh Public Schools during that decade, which emphasized shifting high school social studies curriculums from life-adjustment to inquiry-based learning, was both influenced by and part of that movement. Although the New Social Studies was conceived in the late 1950s, its programs were, for the most part, developed during the socially turbulent 1960s. Possibly due to tight schedules and excessive eagerness to publish, the program designers tended to either downplay or ignore current events, such as the Vietnam War, the Detroit riots of 1967, the assassination of Dr. King, and student strikes. As Dr. H. W. Hertzberg writes in his history of the movement, the 1970s was an inopportune "moment for the introduction of the 'new social studies' materials into the schools, especially since [the project developers] had so little to say about the problems that gripped the nation and the nation's youth."[cccxxiii]

Furthermore, the movement's fundamental premises became objectionable to students and young teachers during the 1970s. Relative to widespread student political action, "the structure of student as academic scholar [sustained by the] delights of discovery and inquiry were tame stuff indeed, requiring a commitment to a rational inquiry that many students specifically rejected."[cccxxiv] For teachers, it was "both ridiculous and intolerable," as it "belied the blood and bone of their own passionate experience – the teach-ins, the crusade against the Vietnam war, [and] the challenge to adult authority."[cccxxv] In short, the movement faced pressures during the early 1970s that it was "organizationally as well as ideologically" unprepared to overcome.[cccxxvi] In 1975, the movement effectively died when the National Council for the Social Studies' Board of Directors began work to reestablish citizenship education – similar to the life-adjustment emphasis that the movement's leaders had aspired to supplant – as the focus of secondary school social studies.[cccxxvii] The dissolution of the movement that Dr. Fenton tirelessly championed likely contributed to the decline in school-university collaborative work in that it cast a dubious light on the History Curriculum Center's work and forced the professor and his colleagues to step back and reevaluate their work.

The actions of commercial textbook publishing firms also adversely impacted

school-university relations during this period. While these firms were, as a rule, eager to take part in the "commercial bonanza" of curriculum work for advanced students and slow learners published in the late 1960s and early 1970s, they were unwilling to maintain the projects they sponsored when the markets for innovative secondary school curricular materials shrunk later in the '70s.[cccxxviii] As school districts nationwide experienced budgetary crises as well as other mounting pressures related to achieving racial equity, sales of textbooks suffered and funding for innovative projects, like the Slow Learners Program, was discontinued. With federal funds having dried up, cut backs in funds from publishers thwarted curriculum development work in all fields, making it significantly more difficult for the Curriculum Centers to obtain funding to engage in curricular work with the schools.

Moreover, Dr. Penna notes that publishing companies also engaged in deceitful distribution practices:

> Publishers knew the market for social studies books for able learners is limited. So they removed the label and sold to almost all takers. In their thirst for something new, teachers across the country [including in Pittsburgh] embrace the new social studies materials in the hope that materials would enliven their classes. The disillusionment that was almost never present among the teachers of able students using experimental versions of the new social studies became apparent after the published versions appeared. Many teachers of average students who had embraced the new social studies felt betrayed.[cccxxix]

Although early descriptions of programs for advanced students developed at Carnegie Tech suggested that materials might be applicable to general classes, they were admittedly not developed with average students in mind and were consequently ill suited to the needs of that demographic. The net effect of this publisher duplicity was general teacher dissatisfaction with and mistrust of expensive classroom materials developed at universities. There is no doubt that such practices harmed school-university relations, especially given the district's limited budget and its emphasis on achieving tangible, immediate results in any collaborative work in which it engaged during 1970s.

Clearly, national developments, district instability, a new school board, the dissolution of the New Social Studies Movement, and the questionable practices of textbook

publishing firms all contributed to the dip in school-university partnerships during the '70s. For such work to resume with its early 1960s intensity, it was necessary for reform in the schools, a reevaluation of the premises of university-based curricular research, and the formation of new, trusting relationships between individuals at the Pittsburgh Public Schools and Carnegie Mellon University.

Despite the general decline in collaborative work during the 1970s, though, Carnegie Mellon continued to work with the schools throughout the decade, albeit in a different, more self-interested way. During the late 1960s, numerous criticisms were lobbed at federally funded university-based minority outreach programs, including Upward Bound (S.C.O.P.P.'s contemporary incarnation) beginning with the Coleman Report of 1966.[cccxxx] For instance, the first holistic evaluation of the Upward Bound program conducted in 1968 found that "most of the teenagers in [the] $30 million-a-year anti-poverty program [were] flunking out of the colleges they were motivated to go to."[cccxxxi] Joseph Froomkin, the United States' assistant commissioner of education who conducted the study, warned that while Upward Bound might increase participants' chances of graduating from high school, their failures in college could easily counter any benefits they had gained.[cccxxxii] Even though advocates of Upward Bound publicly defended the project, national indictments "cast doubt on the effectiveness of [school-university collaborative work] and on the ability of publicly funded educational remediation programs to make a positive difference."[cccxxxiii] In response to widespread criticisms, leaders at Carnegie Mellon discontinued Upward Bound and developed the Carnegie-Mellon Action Project, a multifaceted program designed to enroll *and graduate* more African-American students by recruiting heavily and providing financial, academic, and psychological support to participants. Over the project's duration (it endured, in various forms, until 1990), it succeeded in achieving both of these goals, and by 1977, the university boasted an African-American student population three times the national average for engineering schools.[cccxxxiv]

Because C-MAP was esentially a recruiting tool, it cannot truly be considered a collaborative effort between Carnegie Mellon and the Pittsburgh Public Schools, even though the program grew out of S.C.O.P.P (a joint venture) and a disproportionate number

of participants came from the city schools in its early years. By 1975, however, the program was developed enough for the university to look mainly outside of its region for candidates. When asked about the small number of students from the Pittsburgh Public Schools enrolled in a five-week engineering summer program for talented African-American high school juniors instituted as part of C-MAP in 1976, one leader responded that they university was looking "for the best of the best [and students from the Pittsburgh Public Schools] just don't have as strong an academic preparation [as do students elsewhere]."[cccxxxv] Nevertheless, through C-MAP, Carnegie Mellon maintained relations, however weak, with the Pittsburgh Public Schools throughout the decade.

By 1980, the internal situation in the Pittsburgh Public Schools that had hindered school-university partnerships had improved considerably. As the authors of *City Schools & City Politics* write,

> "[T]he Pittsburgh Public Schools had survived a tumultuous decade and a half. The school system had taken initial steps in responding to an onslaught of demands emanating both from within itself and from a wide range of external actors. It was making progress in the formation of a desegregation plan. In the process, civil leadership had been activated and fragile partnerships established. But much more needed to be done . . ."[cccxxxvi]

When Dr. Richard C. Wallace Jr. was appointed to be superintendent that year and immediately began looking to forge new relationships with community organizations that would enable the district to actualize the desegregation plan, redress lingering grievances, and to improve education, the time was ripe for the establishment of new relations between Carnegie Mellon and the Pittsburgh Public Schools.

By the 1980s, Carnegie Mellon's Curriculum Centers had been closed and the university's focus had shifted to pure research. As such, new collaborative programs were generally tutoring/mentoring, professional development, arts, and technology programs rather than curricular ones. The first major collaborative project undertaken by Carnegie Mellon and the Pittsburgh Public Schools in the 1980s was the Cognitive Tutor Project, commenced in 1985. Dr. John Anderson, a Carnegie Mellon Professor of Computer Science and Psychology, had been investigating the ways in which computers could be used to teach students basic math skills since the beginning of the decade and by 1984, he and his

colleagues had developed two experimental "tutor" programs in geometry. When they tried the programs in a university mini-course, their results were promising: students working with the tutor were not only able to solve problems significantly faster than students working without it, but outscored them substantially on tests.[cccxxxvii] Over the course of that year, Dr. Anderson and his colleagues refined the software, producing the Geometry Proof Tutor, a new program designed to help students solve basic geometrical proofs. In 1985, Dr. Anderson, in pursuit of an outside test bed for his software, contacted Diana Bryers, then the head of the mathematics at the Pittsburgh Public Schools. The researchers' prior success and the fact that the program would be entirely free for the district created a situation in which "the risks were low, but the potential gains were relatively high."[cccxxxviii] This, combined with the district's new reform-oriented agenda of the new superintendent, facilitated the creation of a new partnership.

Ultimately, it was decided that the program would be piloted at Peabody High School from 1985 until 1987 and Rick Worthimer, a geometry teacher at that school, would spend half each work day teaching and half working with Cognitive Tutor development team.[cccxxxix] The cost of the partnership, including ten Xerox D-Machines at approximately $20,000 each and the entire salary of Mr. Worthimer, was funded by NSF grants procured by university researchers.[cccxl] The software succeeded in improving student achievement and at the end of these two years, results showed that "the tutors are roughly ½ as effective as a human tutor, but 2-3 times more effective than conventional computer-aided instruction."[cccxli] Given the program's success, individuals at both institutions were supportive of it and eager to keep it alive.

Shortly after Dr. Kenneth Koedinger, then a doctoral student in Cognitive Science working under Dr. Anderson, revised the software, producing ANGLE (A New Geometry Learning Environment), a program that, unlike its predecessor, was "based on a cognitive model that models—and therefore facilitates thinking—with an expert-like representation of target knowledge." [cccxlii] The next year, the school-university partnership became ever closer. In the first two years of the project, friendly relations had been cultivated between Dr. Anderson and Ms. Bryers. When Dr. Koedinger expressed his willingness to try his program with secondary schools students (after extensive testing at the university) to his

advisor, Dr. Anderson utilized his relationship with Ms. Bryers to make it happen. Following the formula he had used to launch the Geometry Proof Tutor at Peabody, he called Ms. Bryers, who worked with district administrators to have the program approved and suggested a teacher – Jeremy Resnick, a geometry instructor at Schenley High School – to work with Dr. Koedinger and his colleagues on the project.[cccxliii]

Langley High School was chosen as the test site by the district, because math instructors at the school were already looking for new geometry materials. As was the case with the Geometry Proof Tutor, the projects entire cost – including approximately twenty new Apple Computers and Resnick's entire salary– was covered with grants procured by the development team. Resnick moved from Schenley to Langley to work on the project in the fall of 1991 and a development team consisting of four teachers as well as the university development team was formed. Dr. Koedinger worked closely with the teachers during the first half of the year, visiting the school once per week to lead professional development activities as well as to record and respond to teachers' feedback on the program.[cccxliv] When one of the teachers had to take a leave of absence half way through the project, however, an opportunity for Dr. Koedinger to become even more involved with the implementation of his program presented itself. After apprising Dr. Koedinger of this development, Langley's principal half jokingly suggested that he replace the teacher for the remainder of the school year and in good spirits, Dr. Koedinger assented.[cccxlv]

Following this exchange, both men seriously considered the option and what had been part jest soon became reality; Dr. Koedinger was assigned to teach three geometry classes using his software at Langley High School for the remainder of the year. The structure of this arrangement was far less formal than of those that enabled Dr. Fenton and his colleagues to teach in district schools during the early 1960s; a formal substitute teacher was in the classes at all times, to cover certification issues, and Dr. Koedinger, whose time was funded by outside grants, technically functioned as a guest lecturer.[cccxlvi] This was only in theory, however; in practice, Dr. Koedinger assumed all of the responsibilities of a "real" teacher, including role of contact person for the students' parents. In short, by the early 1990s, after a nearly twenty year hiatus, Carnegie Mellon faculty members were again teaching in the Pittsburgh city schools. As was the case in the

teacher exchange program of the early 1960s, Dr. Koedinger's work at Langley solidified the relationship between the university and schools and provided university faculty doing curriculum development work with valuable insight into the workings of high school classrooms.[cccxlvii]

The Cognitive Tutor is highlighted here because it was the most extensive collaborative program conducted between university and the schools during the 1980s. There were, however, other programs that reached out to local schools, whereby faculty and students provided tutoring, music education, and mentorship to students and professional development to teachers.[cccxlviii] Unfortunately, most of these arrangements were conducted without formal institutional support and as such, were generally undocumented. Still, it is clear that during the 1980s, Carnegie Tech students and faculty became increasingly interested in working with the schools and in 1990 the university opened the Center for Community Outreach to organize and facilitate university work with K-12 schools, students, and teachers.[cccxlix] The establishment of the Center, first directed by Dr. Edwin Fenton, marked a turning point in school-university relationships.

The Contemporary Era (1990 – 2005)

The formation of the Carnegie Mellon Center for University Outreach provided an outlet for Carnegie Mellon faculty students to find funding and support for collaborative work with the schools. Moreover, by establishing the Center, two of the university's top administrators "sent a clear message to faculty and staff members: Carnegie Mellon encourages and supports outreach efforts to the schools."[cccl] Dr. Fenton, who had remained relatively uninvolved in school-university collaborative work during 1970s and '80s, was appointed as the Center's first director and brought the same enthusiasm that had led to the explosion of school-university partnerships in the early 1960s with him to his new post.

Perhaps it should come as no surprise, then, that in the early 1990s, university work with the schools flourished. A large number of new tutoring/mentoring programs, professional development programs, arts programs, and curriculum projects were formed between 1990 and 1995. Collaborative work with the schools continued to increase through the decade and in 1998 Carnegie Mellon, Chatham University, and the Pittsburgh

Public Schools received a major grant from Yale University that was subsequently augmented by grants from local foundations to form the Pittsburgh Teacher's Institute, a major, long-term professional development program run by jointly by university faculty for district teachers. Many of the programs started during this period, including the Teacher's Institute, still exist today, thanks to their centralization at the Center for Community Outreach.

Another major impact of the establishment of the Center was the fact that the center's director now acted as the university's ambassador to the schools. Throughout this paper, the importance of personal relationships in establishing cordial and productive partnerships has been emphasized. Through the directors of the Center (first Dr. Fenton and subsequently Judy Hallinen), the university has enabled one person to engage the district's administrators as a representative of the schools and in the process, form close and lasting relationships with them. The importance of such relationships can hardly be overstated.

The Cognitive Tutor Project was also continued throughout 1990s. In 1989, the project developers received another NSF grant to (1) design programs teaching more applicable content, specifically algebra rather than geometry proofs, and (2) determining how to permanently integrate such programs into high school classrooms.[cccli] Again, members of the development team went to Diane Bryers, who recommended a district math instructor, Bill Hadley, to work with the developers to develop this new software and later facilitated trial runs in three city high schools – Langley, Brashear, and Carrick. The program again proved to be successful: during the 1993-94 school year, "the 470 students in experimental classes [at the Pittsburgh Public Schools] outperformed students in comparison classes by 15% on standardized tests and 100% on tests targeting [program] objectives."[ccclii] As was the case in earlier projects, the software was "enthusiastically received by students and teachers"; in fact, "a teacher's [Bill Hadley's] enthusiastic testimonial of the program was critical in convincing the Pittsburgh school board to purchase computer labs to expand the program to two more high schools during the next academic year."[ccliii]

Still, however, this marked the first time that Pittsburgh Public Schools was asked to pay for Cognitive Tutor materials, albeit at a discounted rate. The project development team proceeded to prepare their software for broader use throughout the 1990s and by 1998, they had formed a company, Carnegie Learning: The Cognitive Tutor Company, to market their product. Given the program's demonstrated success in increasing student achievement and its support from individuals within the schools, especially Ms. Bryers and Mr. Hadley, however, the school board reluctantly assented to its continuation throughout the decade even though the payment issue was "immediately problematic."[ccliv] Over the next few years, the school board became progressively more hostile toward the project because certain members felt that "something that had been developed [in the schools] was being used to make money" for the developers at the university.[cclv] This sentiment is quite similar to that expressed by some individuals at the district during the 1960s, after Dr. Fenton and his colleagues launched the Able Learners Curriculum on the national market. The fact that the school district was not only not making money, but being asked to pay for the program, amplified this animosity. In regard to this sentiment, Bill Hadley, in discussions with Dr. Koedinger often said, "It is hard to be a prophet in your own land."[cclvi]

Shortly after the school board voted to sever Superintendent John Thomson's contract in 2004, the Cognitive Tutor program was discontinued in the city schools. Cognitive Tutor, like many of the university-school partnerships in the 1960s, was partially a victim of district personnel changes. Shortly after the superintendent was ousted, Diane Bryers, the Cognitive Tutor development team's point person and chief district advocate, was dismissed. The rapport that Carnegie Mellon faculty developed with Ms. Bryers since the early 1980s had been instrumental to the program's early success as well as its longevity. With her release, then, an important component of the university's relationship with the schools was lost.

Throughout the 1990s, the development team had been largely unaware of the school board's hostility towards the program, but it came to fore with Ms. Bryers dismissal.[cclvii] By 2004, Cognitive Learning was a major national company, with materials in hundreds of schools throughout the country and "it came to a point where [the program developers] wanted to charge the district the full cost to renew [the program]."[cclviii] With a

new interim superintendent looking to cut costs and the loss of a key supporter of the program, however, program advocates could not garner sufficient district support and that year, the board voted to discontinue the program.[cclix]

While the 1990s were clearly a time of growth in school-university relationships, the demise of the Cognitive Tutor Program also illustrates the importance of strong personal relationships and a recurrent barrier to the development of successful partnerships, district hostility toward university faculty members profiting from their work with the schools. Nevertheless, since the creation for the Center for University Outreach in 1990, school-university collaborative work has continued to grow and thrive. The barriers to school-university partnerships that have recurrently thwarted collaborative work still exist, but the Center's director, aware of these barriers, serves as an invaluable mediator between institutions.

The Present (2006 – 2008)

In short, Carnegie Mellon University has a rich history with the city schools. Joint programs have reflected national trends, but have also been dependent on strong interpersonal relationships. Since 2005, school-university collaboration has perhaps reached its highest point yet, with dozens of programs in-place, documentation of which remains centralized at the Center for University Outreach, which has been renamed the Gelfand Center.

Among the most recent major joint projects has been in the development of the Science & Technology Academy, a magnet middle-high school developed initially in a 2006 Heinz School Systems Course. The plan was adopted by the district in 2007 and when opened next fall, the school will be the result of close work between individuals at both institutions and a testament to the potential of school-university collaboration.

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[cclxii] Edwin Fenton, "Working with the High Schools," 168.
[cclxiii] Fenton, "Outreach from Carnegie Mellon to the Schools," 2.
[cclxiv] Ibid., 7.
[cclxv] Ibid.
[cclxvi] Although there are records of administrative meetings from as early as 1907 and the Department of Music teacher certification program that was commenced during the 1930s, documents from the first half of the century are sparse. This does not necessarily mean little work occurred; in fact, it is likely that individuals from the university and schools engaged one another on an unofficial basis and as an unfortunate consequence result, records of their work never made it to the institutional archives.
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[cclxviii] Anthony Penna, "The New Social Studies in Perspective: A History of the Carnegie-Mellon Slow Learner Project," p. 7, Fenton Papers, Box 4, FF22, Carnegie Mellon Library Archives, Pittsburgh, PA.
[cclxix] Fenton, "Working with the High Schools," 157.
[cclxx] Ibid.
[cclxxi] E. Fenton, A. W. George, R. C. Slack, & D. W. Riddle. "College/High School Cooperation: Instituting the Advanced Placement Program in Pittsburgh" (1961), unpublished report, p. 1, Fenton Papers, Box 3, FF23, Carnegie Mellon Library Archives, Pittsburgh, PA.
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[cclxxv] Ibid., 28.
[cclxxvi] Pittsburgh Teachers' Bulletin, LIII, 7 (March 1960).
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[cclxxxvi] Ibid.
[cclxxxvii] Ibid.

[cclxxxviii] Anthony N. Penna, "The New Social Studies in Perspective: A History of the Carnegie-Mellon Slow Learner Project," 7.
[cclxxxix] Ibid., 5.
[ccxc] Ibid.
[ccxci] Ibid., 6.
[ccxcii] Ibid., 5.
[ccxciii] Ibid., 7.
[ccxciv] Ibid.
[ccxcv] Edwin Fenton, "A Proposal to the Pittsburgh Public Schools for the Development and Trial of a Ninth Grade Course for Slow Learners and an In-Service Education Program for the Teachers of Slow Learners," unpublished report, p. 4, Fenton Papers, Box 4, FF23, Carnegie Mellon University Library Archives, Pittsburgh, PA.
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[ccxcvii] Ibid., 8.
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[ccciv] Eskey, "Push And A Pat"
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[cccxiii] Penna, "The New Social Studies in Perspective," 6.
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[cccxvi] "The Select Commission on the Pittsburgh School Board," Unpublished Report, Records of the A.W. Mellon Educational and Charitable Trust, Box 26, FF13, University of Pittsburgh Library Archives, Pittsburgh, PA.
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[cccxlvi] Dr. Ken Koedinger, interview with author, November 21, 2008.
[cccxlvii] Ibid.
[cccxlviii] Fenton, "Outreach from Carnegie Mellon to the Schools," 1.
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[ccliv] Erika Gentry, interview with author, October 28, 2008.
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[cclvi] Dr. Ken Koedinger, interview with author, November 21, 2008.
[cclvii] Dr. Ken Koedinger, interview with author, November 21, 2008.
[cclviii] Ibid.
[cclix] After the program's termination, Bill Hadley left the district, where he had taught for thirty years, to assume the position of Vice-President of Educational Services at Carnegie Learning, Inc.

Technology

ZHI WEI LEONG

THE Carnegie Technical Schools' purpose was to impart technical knowledge and skills to the local students of Pittsburgh. Andrew Carnegie's initial conception of the Carnegie Technical Schools did not include any plans for it to develop as a research institute nor for its members to engage in research in science and technology. Yet the evolution from Carnegie Technical Schools to Carnegie Institute of Technology, and finally to Carnegie Mellon University, has been paired with substantial progress in the field of research and development. As the school catered to the workforce of Pittsburgh's industries, it is not surprising that the region has had a significant role to play in shaping the direction of the school's technological advances. Conversely, the school's growing influence and achievements in particular fields have brought about changes in the region's economy.

Even the years as Carnegie Technical Schools, from 1905 to 1912, were not devoid of all research activities. Engineers and scientists from steel companies utilized the school laboratories to carry out metalwork analysis.[ccclx] Although the faculty was not involved in the research, it showed that adequate facilities were present in the school and interest in collaborations between the school and Pittsburgh region industries was strong. These industrial specialists were also willing to spend time giving lectures on the latest developments in heavy industries. Furthermore, students benefitted from being in close proximity to a vibrant, prospering industry as they participated in inspection visits to

factory plants along the Allegheny and the Monongahela river banks and took advantage of employment opportunities generated by the industry. [cccLxi]

In 1912, under the Hamerschlag administration, the school became known as the Carnegie Institute of Technology (Carnegie Tech) and began to offer four-year degrees. School officials continued to emphasize work relevant to the region, especially through the six bureaus of the Division of Applied Psychology. The Division, created by Walter Van Dyke Bingham in 1916, facilitated the development of early industrial psychology and prepared psychologists, in particular women, for industry work. Its primary focus on human engineering was adapted for industrial purposes, drawing clients from the Pittsburgh region and eventually modified to cater to a national interest.[cccLxii]

A large portion of the Division's research included the development of psychological tests which were applied to all Carnegie Tech students, such as tests on intelligence, language, memory, reasoning, manual dexterity and spatial abilities.[cccLxiii] The aim of these tests was to develop rating scales for the region's industries that would pair up workers with jobs in the most optimal way. This was one of the first projects that attracted significant funding and corporate partnerships from large companies such as the Equitable Life Assurance Society, the Ford Motor Company, the Carnegie Steel Company, and the H.J. Heinz Company.[cccLxiv] In one particular experiment by the Bureau of Personnel Research, Carnegie Tech's teachers and employees of a manufacturing firm judged 139 technical night school students to determine their quality of work and evaluate if they were suited for a certain line of work. The test was eventually merged into Carnegie Tech's entrance requirements and served as guidelines for the hiring of students by manufacturing firms.[cccLxv] In the Carnegie School of Practical Life Insurance Salesmanship, insurance agencies provided scholarships to fund the tuition fees of students. The enrolled students were given a chance at practical training by soliciting insurance in Pittsburgh during the course of their studies.[cccLxvi] Likewise, the Research Bureau for Retail Training formed ties with regional partners. Its founding was financially supported ($32,000 per year for five years) by the seven largest department stores in Pittsburgh, including the Kaufmann's Department Store, whose interests matched the research objectives of the bureau. The research scope of the bureau included methods of appointments and promotions of retail

staff that were of economic interest to the bureau's sponsors. The commercial sponsors utilized direct application of similar methods to improve their human resource management.[cccLxvii]

Besides supporting the Division of Applied Psychology, Hamerschlag also focused on the field of metallurgy and mining. He promoted a conference on May 27, 1919, where thirty men from mining-related corporations gathered and proposed a three-party cooperative plan as well as the formation of a Mining Advisory Board to oversee its operations.[cccLxviii] This collaboration between the Carnegie Institute of Technology, the United States Bureau of Mines, and the Advisory Board of Coal Mine Operators and Engineers aimed to train young men in areas suiting the needs of the mining industry. The Department of Mining and Metallurgical Engineering introduced Cooperative Mining Courses to achieve the above aim, with the school selecting the Research Fellows, the Bureau of Mines providing laboratory facilities and advice from its technical staff, and the Advisory Board determining the direction of research projects and publication of reports. The program sponsors believed that education could be best provided with the support and involvement of external industry members.[cccLxix] In looking for the "closest cooperation possible with the mining industry," Alumni Bulletins were sent to former students of the Department in hopes of further developing ties with mining-related industries.[cccLxx]

Another consequence of the 1919 conference was the concept of a Bureau of Rolling Mill Research within the school. The purpose of the Bureau was to engage in basic research involving changes in steel during rolling processes, disseminate the relevant results to contributing cooperating industrial partners, offer courses to employees of the industrial partners and provide laboratory facilities for the partners to pursue secondary research catering to their industrial needs.[cccLxxi]

The objectives of the Bureau were slightly different from the objectives of the Cooperative Mining Courses that had focused on education and the development of prospective workers in the mining industries. However, attempts at securing funding and collaboration for the Bureau failed. Even though two hundred and thirty firms and corporations related to the manufacturing of steel and steel making equipment had been approached regarding membership as participating partners in the Bureau, only twenty-

one companies signed the preliminary application and an even smaller number of companies were willing to commit to the final memo. The director, William B. Skinkle, found that "much suspicion among officials of competing firms and so much desire on the part of each individual to know exactly what his competitors intend [on] doing before committing himself" was the reason for the lack of support from members of the mining industry. Even verbal assurances from well-established companies, namely the Carnegie Steel Company, the A. Garrison Foundry Company, the National Tube Company and the Westinghouse Electric and Manufacturing Corporation, did not encourage other smaller companies to sign on and support the formation of the Bureau. As such, the idea to form the Bureau of Rolling Mill Research was shelved.[cccLxxii]

At this point, the number of faculty and equipment available in Carnegie Tech was small and mostly allocated to research areas that could have a direct impact on Pittsburgh. Any relevance to national interest was mostly a result of spinoffs from research that originated from regional demands. Thus, science and technology research was evidently driven by the industrial needs of the region.

The change of presidents at the helm of Carnegie Institute of Technology did not alter that aspect of the school's research projects but it did turn the research into new directions. Hamerschlag had placed his focus on developing the six bureaus within the Division of Applied Psychology. Baker, on the other hand, preferred to concentrate the school's resources on science and engineering research related to mining and metallurgy. He closed the Applied Psychology bureaus and opened a metals laboratory as well as the Carnegie Coal Research Laboratory. Baker had more success when it came to facilitating cooperative ventures between steel-related corporations as well as with the school. He was also more involved in the political and social issues relevant to the Pittsburgh region, hence taking Carnegie Tech in the direction that was in line with the needs of Pittsburgh. Baker held international conferences on bituminous coal in 1926, 1928 and 1931 that generated significant publicity for Carnegie Tech and the Pittsburgh region[cccLxxiii]. Not surprisingly, after the coal conferences were held, more major companies and organizations from western Pennsylvania approached the university to support and participate in the metals and coal research work.

The international conferences on bituminous coal, which Baker actively lobbied for, paved the way for the creation of the Coal Research Laboratory. The largest donor supporting the Laboratory was the Buhl Foundation of Pittsburgh, which contributed $50,000 for Laboratory equipment. In addition, the Buhl Foundation, together with US Steel Corporation, General Electric Company, Koppers Company, New York Edison Company, Standard Oil Company of New Jersey and Westinghouse Electric and Manufacturing Company, contributed a total of $75,000 a year for five years to maintain coal research.[cccLxxiv] In the Laboratory, researchers focused primarily on the fundamental knowledge of the chemical nature of coal and the physical and chemical mechanisms of its combustion, carbonization, and liquefaction.[cccLxxv] The fundamental research in coal and coal products promised to increase efficiency within the metals and mining industry, with President Baker arguing that "Pittsburgh is the appropriate place in which to study coal [as] its industrial greatness is based largely on the rich supply of fuel in this district."[cccLxxvi]

In the year 1935 alone, faculty and staff members from the Coal Research Laboratory published nineteen papers and filed a patent application on a method and apparatus for high vacuum fractional distillation.[cccLxxvii] This was a significant achievement for Carnegie Tech as a young university. It would not have been possible if members of the region's steel and coal industries had not supported the Laboratory. Closely related to the mining community was the issue of labor. Andrew Carnegie's aim for the school was to train young men in technical skills, and Baker had observed that having workers who were technically adept could be a solution to Pittsburgh's mining problems. Hence, Carnegie Tech's program for students in the Coal Research Laboratory was designed to provide a trained source of labor for the mining workforce in Pittsburgh.[cccLxxviii]

During this period of time, Pittsburgh was expanding its metals production and mining activities that accounted for a large proportion of the Pittsburgh economy. The U.S. Bureau of Mines and the Mellon Institute for Industrial Research were among the many research institutes situated in Pittsburgh that were bringing national attention and investors to the region.[cccLxxix] The school was able to persuade the Bureau of Mines to transfer its electric furnaces and research men from Seattle to Pittsburgh as part of the Cooperative Mining Courses.[cccLxxx] As the city thrived in the early 20th century, it was

evident that Carnegie Tech reaped the benefits of being in a city known as the "Workshop of the World".[cccLxxxi] Scientists from countries around the world, including China, Russia, Sweden, the Union of South Africa, Australia, and Great Britain, visited the Coal Research Laboratory in 1944, drawn by the collaborative work that the Laboratory had participated in with prominent steel and coal companies.[cccLxxxii] From the 1920s to 1940s, metals researchers constituted the majority of the research population at Carnegie Tech, undoubtedly due to the importance of the steel and metals industry in the region and nation. The Hoover Report argued that researchers tend to locate in areas containing many other researchers in the same or closely adjacent fields and this was certainly the case in Pittsburgh.[cccLxxxiii]

Throughout Carnegie Tech's history, Westinghouse Electric and Manufacturing Company was a significant industry partner and sponsor of many projects at the school. As a school providing technical training for steel and metals workers, Carnegie Tech's night school was attended by thousands of workers employed by Pittsburgh companies. Westinghouse employees working in these domains were the biggest group to benefit from this education, with as many as 428 employees at Carnegie Tech in 1927.[cccLxxxiv] Beyond that, joint research endeavors were pursued at Carnegie Tech in partnership with Westinghouse. Even though its programs at Carnegie Tech were not among Westinghouse's main industrial activities, many projects yielded substantial results. In 1922 at the first offerings of the Cooperative Mining courses, Westinghouse contributed to the equipping of new mining, ore dressing, and coal washing laboratories. In addition, Westinghouse provided funding for establishment of an endowed chair, the position of the George Westinghouse Professor of Engineering

By the mid-20th century, however, the Carnegie Institute of Technology was no longer influenced solely by Pittsburgh's dominant industries. Instead, the school's research programs had begun to diversify during the Doherty administration, primarily due to World War II. Research funding came in the form of government grants, and by 1942 confidential research projects were undertaken under the Defense Research Committee of the U.S. Office of Scientific Research and Development.[cccLxxxv] Doherty supported metallurgy and coal research for he felt that the "two fields, coal and metals,… have especial

significance in this particular locality" but with funds filtering into nuclear research, electrical engineering and other disciplines, the school inevitably expanded its research activities.[cccLxxxvi]

Furthermore, many departments were affected by a shortage of faculty and staff members who worked for the American war effort. For instance, within the Coal Research Laboratory the demand for fundamental coal research was present but in its 1943 annual report the Laboratory reported that it found impossible to undertake many projects "until after the war because of inability to secure the needed personnel".[cccLxxxvii] Still, work in the Laboratory was pertinent to federal needs and in 1944 government officials from the War and Navy Departments, the War Production Board, and the Office of Economic Administration visited the Laboratory for consultation. [cccLxxxviii] Science and technology developed for military purposes would filter into non-classified areas and be made available for commercial use but only after a substantial period of time.

Cold War events after World War II sparked a huge increase in federal funding that enabled a lot of previously insignificant departments to start on materials work that deviated from fundamental research.[cccLxxxix] Over ten years from 1954 to 1964, research contracts substantially increased from $5.4 million to $19.5 million, with a large proportion coming from the federal government.[cccxc] This increase in federal research coupled with the subsequent decline in the region's steel and metal industry in the late 1960s and 1970s led Carnegie Tech to reduce its reliance on the region for support. Even though these areas have diminished in importance, metallurgy and materials science continued to be within the school's research domain and even in 1994, a Pittsburgh High Technology Council report listed "metalworking" as one of five main industrial "clusters" for future development.

By the late 20th century, new dynamics emerged between the school and the region. Before, the direction of science and technology research in the school had been dictated by the region's needs. After the collapse of the steel industry in Pittsburgh, the school established itself as a leading player in the computing and information technology industry. Among the most significant developments during the Warner administration was the establishment of the Computation Center in 1956, and interdisciplinary research work

gained momentum from this point on. The Computation Center was initially located in the basement of the Graduate School of Industrial Administration (GSIA) and was jointly supported by the business school and the departments of Psychology, Electrical Engineering and Mathematics. An IBM 650 digital type machine placed in the Computation Center became the school's first computer.[cccxci] Subsequently, the Center moved to Scaife Hall and acquired the custom-designed Bendix G-20 machine. The Center attracted much attention from faculty and students at that time and Alan Perlis, director of the Computation Center, made the computers highly accessible to the school's faculty and students.[cccxcii] Interest in computer science and information technology drastically increased within Carnegie Tech. The federal government provided funds for equipment and research in the Computation Center, through grants from the National Science Foundation and contracts from the Advanced Research Projects Agency of the Defense Department (ARPA). In 1964, ARPA further furnished Carnegie Tech with $3 million to establish the Center for the Study of Information Processing.[cccxciii] All of these occurred as the larger Pittsburgh economy was sliding downhill and moving from manufacturing industries to service-based industries.

In 1965, the Department of Computer Science was formed under the Mellon College of Science, and by the time it evolved into the School of Computer Science in 1988, it had achieved nation-wide recognition as a leader in the computer science community. Besides covering the traditional core areas of computer science such as theory, hardware and software systems, as well as artificial intelligence, the department also developed distinctive new research areas such as programming language semantics, parallel computing, software engineering, mobile computing, system verification, planning, speech, and vision.[cccxciv]

The shift into hi-tech economic development in Pittsburgh was aided by Carnegie Tech's increasing presence as a national institute. Carnegie Tech's merger with the Mellon Institute in 1967 gave the school access to more resources and a more prominent national reputation. Innovative, groundbreaking work of faculty members was also essential to the school's development. In particular, Herbert Simon and Allen Newell developed substantial research in artificial intelligence and are considered among the founders of this field.[cccxcv]

As Herbert Simon declared to his class in 1956, "Al Newell and I invented a thinking machine." This was the start of an obsession with chess programs which generated much publicity over the years. Using chess as a background, Simon and Newell produced a program, the Logic Theorist, based on pattern recognition that modeled human thinking processes. They later designed a General Problem Solver program that was to factor in means-end analysis which furthered the field of artificial intelligence. These two programs proved to be immensely motivating to other students and faculty. The chess computer created by Carnegie Mellon students, Deep Thought, was so successful that it was further developed at International Business Machines Corporation (IBM) as the world-famous Deep Blue chess computer that defeated world-champion Kasparov.[cccxcvi]

Further achievements that brought national recognition to the region included Carnegie Mellon's partnership with IBM to build the Andrew computer network, under the Stever administration. A task force report on the future of computing at Carnegie Mellon had recommended that the school move to a distributed computing system based on powerful personal workstations and a networked "integrated computing environment." As such, the school started the Information Technology Center (ITC) in 1982. [cccxcvii] Within five years, the ITC had successfully deployed the Andrew system with nearly five hundred workstations and over six thousand registered users.[cccxcviii] Carnegie Mellon became the first university to put into place a local-area-network computing system to connect all faculty and student computers to powerful central computer resources.[cccxcix] It provided a model of which other universities and communities were interested in studying and emulating. By 2000, the system connected more than 15,000 computers and Carnegie Mellon was ranked the most wired campus in the country by the magazine *Yahoo! Internet Life*.[cd]

Headline news such as the above made it easier for Carnegie Mellon to attract high-caliber research members who usually had close affiliations with major industry players. These members were often credited with influencing information technology companies into establishing regional offices in Pittsburgh. Simon and Newell had both worked as consultants and contributed extensively in collaborative work at the Rand Corporation, and the organization eventually opened an office in Pittsburgh in 2000.[cdi] Research efforts with

IBM led to the establishment of the ITC, a project funded entirely by IBM.[cdii] Other than the Andrew network system, the Center, together with Digital Equipment Corporation, was also involved in the High Performance Infrastructure to the Desktop project.[cdiii] In reaching out to industry members, these partnerships between university and private corporations presented good business opportunities for the Pittsburgh region.

As Carnegie Mellon and its collaborative work yielded visible results in the 1980s, more and more high-technology organizations chose to invest in Pittsburgh. The Software Engineering Institute (SEI) was one such example. Its contract was competitively awarded to Carnegie Mellon in 1984 to advance the practice of software engineering, sponsored by the Department of Defense under contract F19628-85-C3 and operated by the school. To achieve its key objective to provide leadership in software engineering and in transitioning new software engineering technology into practice, the SEI has had to work with leading members of the industry.Hence, its internal organization is structured to facilitate the necessary collaborations between the Department of Defense and services organizations, the defense industry and the academic and research communities.[cdiv] Thus, its location in Pittsburgh has brought attention to the region while local companies and universities provide support to the SEI in its research and development work.[cdv] In addition, the SEI initialized an education program to increase the number of qualified software engineers in the country. One of the projects under the education program was the Software Engineering Curriculum project. To design software engineering course material, the Institute arranged for a number of visiting faculty from various universities to spend a semester or summer at the SEI. The Institute's development of relationships with these software engineering experts was to be extended over a number of years and brought positive impact to the region's high-technology industry.[cdvi]

Similarly, the funding for the Pittsburgh Supercomputing Center was granted by the National Science Foundation due to the viability of a tripartite cooperation between Westinghouse, Carnegie Mellon and the University of Pittsburgh. The Center, established in 1986, has since been utilized by scientists from both public and private organizations for a large variety of projects ranging from physics to biomedical sciences.[cdvii]

During the early 1980s, one of the basic strategies developed to revamp Pittsburgh's economy was to support the emergence of new high-technology industries by creating local venture capital pools and transferring advanced technologies from universities to industry. This was done through organizations such as the Pittsburgh High Technology Council, the Enterprise Corporation of Pittsburgh and the Western Pennsylvania Advanced Technology Center.[cdviii] Carnegie Mellon itself facilitated this by opening the Technology Transfer Office in 1993, which helped transform technological research into commercial products by collaborating with regional organizations.[cdix] Not only did it enable the creation of more local enterprises, it drew the attention of investors into the region. By 1998, the university was spinning out five companies, seventy-four inventions disclosures and was taking in slightly more than $30 million on technology transfer deals in a year.[cdx]

Robotics has also been one of the latest focuses of Carnegie Mellon's technological research. During his administration, President Cyert saw robotics as a possible solution to domestic manufacturing problems. Having observed the significant progress Japan had achieved in utilizing robot technology to increase efficiency and productivity in its manufacturing industries, Cyert was convinced that industries in the United States had to embrace robotics in a similar fashion to remain economically competitive.[cdxi] Since the manufacturing sector still constituted a majority portion of the Pittsburgh region's economic activities, Cyert deemed robotics as particularly relevant to the region and the university. It was also an opportunity to challenge Japanese dominance in this field of technology.

In 1979, President Cyert started a series of meetings that culminated in the formation of the Robotics Institute directed by Professor Raj Reddy. While the Institute may appear to have a broad range of research programs in robotic device design and control, manufacturing technology, microelectronics technology, sensory technology, computer science, and artificial intelligence,[cdxii] the two main categories that feature prominently within it are robotic technology applicable to manufacturing industries and robotics for hazardous environments.[cdxiii] All the robots to be built in the Institute had a similar focus on artificial intelligence. As Daniel Berg, the then dean of science, explained, the robots developed would "have the ability to acquire information from the environment"

as they are "sensing, thinking and acting."[cdxiv] Developing intelligent robots for industrial purposes was in line with the region's vision to shift to high-technology industries.

The very first industrial partner of the Robotics Institute was Westinghouse Electric Corporation. Tom Murrin, then President of the Energy and Advanced Technology Group at Westinghouse (he later went on to be the Deputy Secretary of Commerce in Washington, D.C.), shared Cyert's views. He was convinced that cooperative research and development programs between industry and academia were necessary to take technological findings out of the lab and into the practical industrial arena, so as to combat national and regional manufacturing problems.[cdxv] When the Robotics Institute was formed, Westinghouse gave $1 million in the first year and promised $4 million over the next four years.[cdxvi] Subsequently, the Institute began to attract numerous industrial sponsors who contributed grants and contracts for robotics research projects. It enabled the Institute to rapidly expand its personnel, from a small group of 30 scientists and engineers during its inception in 1979 [cdxvii] to a significantly larger group of 53 teaching and research faculty, about 45 technical staff and 63 graduate students in 1990. [cdxviii]

Industry members from the region saw many benefits in cooperating in the Robotic Institute's programs. By the 1980s, what mattered was not just knowledge, but the speed at which this knowledge could be disseminated and utilized. The race to produce better and cheaper goods in larger quantities was not simply a national trend, but a global one. For the region to remain economically viable amidst such intense competition, Director Reddy felt that it was imperative to shorten the time taken to transfer technology from laboratories to factories. In 1980, the normal transfer time from the research and development stage in university laboratories to actual practical implementations in industry was ten years.[cdxix] Thus, the Robotics Institute's goal was to allow its sponsors to benefit throughrapid technology transfer.[cdxx] The Institute was extremely successful in this aspect and results were evident within a short period of time. By 1984, five years after work had begun at the Institute, various projects were yielding substantial results, especially in terms of robotic mobility. Within five years, two-thirds of the Institute's research laboratories had already developed technologies that had been applied commercially by the projects' industrial sponsors.[cdxxi] The rapid technology transfer was enabled through several means.

Sponsoring industry members sent their resident engineers and scientists to Carnegie Mellon and, similarly, research faculty from the university visited plant sites to help in the necessary set-up and training of operating personnel. In addition, the Institute encouraged for partial but useful results to be sent to the sponsors without requiring the completion of the projects.[cdxxii]

Therefore, location played a major role in the Institute's ability to increase the speed of transfer. Since it was much easier to facilitate exchange of ideas when university and industry are located in close proximity, Carnegie Mellon definitely had a part in attracting technology firms and manufacturing companies to Pittsburgh or to locate regional offices in the city. Not only did this hasten new findings in scientific and technological research within Pittsburgh, it also boosted the economic development of the region. American Robot Corporation was one such example of a company attracted to the robotics community in Pittsburgh. It was moved to Pittsburgh in the 1980s, to be closer to the Robotics Institute at Carnegie Mellon and the rapidly developing technology hub in the area.[cdxxiii]

The Field Robotics Center was created in 1983 and has since left its mark on the region.[cdxxiv] Local grounds were used to test the robots created, and in 1984, the Center developed robots that were used to clean up the nuclear waste after the Three Mile Island disaster. At present, the Center has singled out the problems of an ageing Pittsburgh population and created research projects aiming to increase the mobility and independence of the elderly.

President Cyert and faculty members remained aware of the social implications of their technological work in the region, even as they were enjoying much success in the computer science and robotics research areas. In the later half of the twentieth century, American manufacturing industries have been slow in utilizing technology as a means of improving productivity as compared to other industrial countries. A study done by the university had forecast that robots would replace three million additional factory workers by the year 2000.[cdxxv] Even though most of the work to be done by robots was likely to take place in hazardous environments such as coal mines and nuclear plants, workers still felt threatened by technology. Although it was argued that with a declining birth rate in the United States labor shortages would become a problem, a large number of workers

remained unconvinced that they would benefit from the newly acquired science and technology.[cdxxvi] Especially in a city such as Pittsburgh represented by strong labor unions, Carnegie Mellon had to walk a fine line between pursuing purely economic interests and the social consequences that might emerge as a result of the university's research work. In order to meet the region's social needs, the administration included a center within the Robotics Institute that brought together engineers, social scientists and corporate experts to look into studying the long-term prospects for a robotics society. Business executives from relevant organizations were also invited to participate in a forum exploring the alternative labor solutions for workers displaced by robotics.[cdxxvii]

Having taken into consideration the wide range of scientific endeavors that Carnegie Mellon University has involved itself with, this section has focused on the main areas of science and technology activities of the six bureaus of the Division of Applied Psychology, metallurgy and mining (in particular the Cooperative Mining Courses, the Bureau of Rolling Mill Research and the Coal Research Laboratory), computer science and robotics. Carnegie Mellon benefitted extensively from the funding provided by Pittsburgh companies for research and development. Contributions from private industries dominated funding of school projects until the mid-20th century, when federal funds increased exponentially to boost the school's research work. In return, sponsoring organizations profit from new technologies generated from research done in the school. These organizations also gained from partnerships with the school as many students eventually formed a part of their labor force, especially during the early years of Carnegie Tech. Furthermore, any publicity garnered by the school in recognition of its science and technology research was additional publicity for the region. Exchange of personnel between the school and industries has been an important aspect in aiding both parties in terms of science and technology advancements. Currently, many more projects continue to emerge from collaborations between Carnegie Mellon, Pittsburgh universities and the region's industries. At no time since its founding has the school been viewed as a separate entity from the region. Rather, its interactions with public and private institutions in Pittsburgh have occasionally dictated the direction of development of the school. The school's influence has likewise affected

Pittsburgh's progress in various economic and technological fields, thus shaping the history of both communities.

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Accommodating Change

LIZ DeVLEMING

FOR the purposes of this chapter, economic development signifies improvement in the state of the economy of a region from several perspectives. First, economic development implies fostering or expanding established regional industries. Second, it involves attracting new businesses to the region and creating new start-up companies. Third, it assists in reducing unemployment, building infrastructure (such as highways, parks, affordable housing, and quality schools), and increasing the wealth and wellbeing of the area's inhabitants. Finally, high literacy rates, environmental protectionism, and scientific and technological resources, both human and concrete, can contribute to economic development.

The chapter aims to respond to two fundamental questions. First, in transitioning from a trade school designed to educate Pittsburgh's young mill workers and grant only two-year certificates and three-year diplomas to an internationally renowned research university that attracts the best and brightest students and faculty from around the globe, has Carnegie Mellon University maintained the emphasis on serving the Pittsburgh economy espoused by Andrew Carnegie in his original letter of gift? Secondly, as the university has evolved since the foundation of the Carnegie Technical Schools in 1900, how has its relationship with Pittsburgh's powerful companies, individual businessmen, and economic organizations similarly evolved?

A Gift from Carnegie

In 1900, Andrew Carnegie supplied the city of Pittsburgh with an endowment of $1,000,000 in gold bonds to found a Technical School designed to educate Allegheny County's mill workers. In the official announcement on November 15, 1900, Carnegie proclaimed: "For many years I have nursed the pleasing thought that I might be the fortunate giver of a Technical Institute to our City, fashioned upon the best models, for I know of no institution which Pittsburgh, as an industrial centre, so much needs." [cdxxviii] And he was right. At the time, there was not a technical university to be found within a 300-mile radius of the city – quite an anomaly considering the dependence of Pittsburgh's economy and livelihood on technology and science.

The philanthropist's interest in establishing a local trade school rather than a national university sprung from his childhood experience as a textile worker, which instilled in him the importance of effective blue-collar work in a burgeoning economy. "Unimpressed by liberal arts institutions," he envisioned an institution that would offer both day and night classes and grant two-year certificates and three-year diplomas to local students with limited educational backgrounds.[cdxxix] In its earliest years close to 90 percent of the student body of Carnegie Technical Schools (CTS) hailed from the state of Pennsylvania. Four schools comprised the young university: the School of Science and Technology, the School of Fine and Applied Arts, the School for Apprentices and Journeymen, and the Margaret Morrison Carnegie College for Women.

Carnegie Technical Schools' immediate impact on the Pittsburgh economy was evident in the life of its graduates: workers from more than 1,000 local firms took courses, often in the evening, at the four colleges in order to increase their skills. An advisory committee appointed in 1902 determined that a broad range of courses were to be offered, each envisioned with "direct reference to the needs of the great industries in the Pittsburgh district."[cdxxx] Class field trips brought students on "inspection visits" to the famous factories along the Allegheny and Monongahela Rivers.

The Carnegie Technical Schools' first Director

Andrew Carnegie and the Trustees offered Arthur Anton Hamerschlag directorship over Carnegie Technical Schools on November 10th, 1903, a title that would change to the

presidency in 1918. Under Hamerschlag's leadership, the fundamental concept of Carnegie's initial letter of intent persevered. A preliminary plan drawn up by Hamerschlag and William H. Frew, chairman of the Board of Trustees of the Carnegie Institute and Andrew Carnegie's Pittsburgh lawyer, specifically stated that CTS should not aspire to the ranks of a university. It would grant no bachelor's degrees and provide no opportunity for graduate work, but rather focus on purely vocational training culminating in two-year certificates or three-year diplomas. Carnegie Technical Schools was not modeled on universities like Harvard, but on technical schools like the Drexel Institute in Philadelphia and the Pratt Institute in Brooklyn; for this reason, it would not compete with the nearby Western University of Pennsylvania (WUP), now the University of Pittsburgh. The preliminary report stated that "there exist[ed] in Pittsburgh and [its] vicinity absolutely no school of any kind that [would] enable a young man to acquire the rudiments of a trade," and this was the niche CTS aimed to fill.[cdxxxi]

Despite the early vision for the Schools shared by Carnegie, Hamerschlag, and Frew, by 1910 the Frew-Hamerschlag plan had effectively failed. Three-year diplomas did not qualify students for the jobs they wanted: since local Pittsburgh unions required potential workers to undertake 4-year apprenticeships prior to employment, enrollment at CTS fell dramatically. The Schools' graduates were repeatedly excluded from membership in technical societies when they failed to present conventional degrees. Furthermore, it was difficult to attract faculty to such an institution. Frustrated students and staff appealed for the addition of a fourth year to CTS' curriculum.

In response to demand, Hamerschlag quickly switched gears and led the way in implementing four- and five-year programs leading to bachelor's and master's degrees. In 1912, a charter renamed the Carnegie Technical Schools (CTS) the Carnegie Institute of Technology (CIT), a reflection of this fundamental shift in ideology. Despite the changes that the school underwent during these years, Professor Edwin Fenton suggests that Andrew Carnegie would have responded favorably to such evolution of the University: "He would recognize and admire the nimbleness of the institution, its ability to build programs, scrap them when the times began to change and build anew, just as he ran his steel mills."

[cdxxxii] The university was receptive to the changing needs of the surrounding Pittsburgh economy and was eager to adapt itself accordingly.

Even in the earliest years of the institution, members of Carnegie Technical Schools' faculty spoke at meetings of local organizations and professional conferences and played a key role in promoting economic discussions in the region. For example, Director Hamerschlag himself spoke regularly at the request of interested organizations and organized an exceedingly popular series of lectures throughout the city on a range of subjects, with the number of attendees totaling 9,000. Rather than "waiting for the community to come to the institution, he took the institution to the community," and succeeded in educating the people of Pittsburgh not only about the new university, but also on matters most relevant to regional economic success.[cdxxxiii]

On-campus lectures from the region's top scientists and business executives provided a great opportunity for Carnegie Tech's students to keep up with external industry advancements. More directly, Pittsburgh's corporations offered undergraduates part-time employment opportunities and recruited graduates to well-paying, full-time positions. And, Hamerschlag worked hard to ensure that his graduates would continue to be sought after by regional businesses.

In an attempt to best market CIT to local business leaders, President Hamerschlag formed a committee to poll the executives of Pittsburgh's top companies on what skills and knowledge they needed in their work force. However, the inquiry was abandoned when Pittsburgh's economic leadership neglected to take the time to interact with Hamerschlag's committee. In 1916, Tech's newly established Division of Applied Psychology conducted research that would "prepare rating scales that would result in more nearly placing the right man in the right job." This research led to partnerships between the university and many local and national companies, including the Equitable Life Assurance Society, the Ford Motor Company, the Carnegie Steel Company, and the H.J. Heinz Company.[cdxxxiv] The creation of the short-lived Research Bureau for Retail Training and the School of Life Insurance Salesmanship both similarly attracted the attention of industry and garnered financial support.

Despite this work, a 1919 study on the percentage of the institution's graduates between 1908 and 1919 who found jobs in the Pittsburgh region reported that 70 percent of the graduates of the School of Applied Industries were successfully employed in the area, while only 41 percent from the School of Applied Science and 28 percent from the School of Applied Arts gained such employment. Carnegie Institute of Technology graduates were migrating to other parts of the country in large numbers. Another important development was that by 1921 nearly half of the incoming student body was recruited from locations outside Pittsburgh. This trend led the *Report of the Survey Commission* to predict that the Carnegie Institute of Technology was "destined – unless its character be changed – rapidly to acquire greater prestige and reputation and to draw to the city considerable numbers of the select youth of the United States for technical and professional training." [cdxxxv] Similarly, *From the Founder*, an article written by Carnegie and published in the 1906 edition of the *Thistle*, CIT's annual yearbook, demonstrated an expectation that "Pittsburgh [was] to rank in the world as one of the chief centers of technical education" in the near future.[cdxxxvi]

Meanwhile, in the summer of 1909, Andrew William and Richard Beatty Mellon, two rich and influential Pittsburgh bankers and entrepreneurs, recruited Professor Robert Kennedy Duncan, former head of the Department of Chemistry at Washington & Jefferson College, to help them found a Department of Industrial Research at the University of Pittsburgh that would promote a greater partnership between science and industry, an area in which Professor Kennedy had specialized. With Professor Duncan's help, the Mellon brothers established the Mellon Institute. The Institute was successful in its mission of promoting industrial research and, "by 1920, 83 scientists conducted $300,000 worth of research each year on projects that included a Pittsburgh smoke abatement program, the invention of the gas mask, a pneumonia serum, a number of paints, dyes, and varnishes, and a series of discoveries that led to the creation of the petrochemical industry."[cdxxxvii] Although the two institutions were founded and developed independently from one another during these early years, they would one day unite to form Carnegie Mellon University.

President Baker's University-Industry Partnership

In 1922, Carnegie Institute of Technology's first president, Anton Hamerschlag, resigned and Dr. Thomas Baker became president of CIT. President Baker promptly invited Pittsburgh executives to campus to be appointed as "company deans" who would coordinate the studies of their current and potential employees. Evening inspection visits to Tech's many departments educated local business leaders on Tech's efforts to contribute to economic development in Pittsburgh and produced a mutually beneficial university-industry partnership. In 1927, of some eleven hundred night school students enrolled, 428 were Westinghouse employees; Carnegie Steel claimed 232; and 104 hailed from the Duquesne Light Company. [cdxxxviii]

Under Baker, CIT provided a series of free public on-campus lectures by such famous scientists as Albert Einstein, Irving Langmuir, and Niels Bohr. Through these lectures, and in hosting conventions of national societies of scientists, engineers, printers and dramatists, Tech established itself as the premiere hub of scientific thought in Western Pennsylvania.

As a result of Baker's efforts, the school won the right to play host to three international conferences on bituminous coal in 1926, 1928, and 1931. An article in *The Tartan* published in 1928 illuminates the excitement of the region at the opportunity:

> The "City of Smoke" is a fitting setting for the Second International Coal Conference. Pittsburgh lives on coal and should therefore be more interested in the coal conference than most of her sister cities… One of the most outstanding matters to be considered is the liquefaction of coal to be used as fuel oil. The process originated in Germany and seems at present to be of great interest to the Standard Oil Company. [cdxxxix]

Thus the growing prestige of Tech allowed Pittsburgh to take on a leadership role over one of the most important facets of its economy: bituminous coal. The coal conferences are discussed in greater detail in the preceding chapter on science and technology.

Under the Baker administration, the origins of the student body continued to change. In 1928, 69 percent of Tech's incoming students came from Pennsylvania, compared to 90 percent in 1908; "day students came from 42 states in addition to Pennsylvania, with the largest numbers from the central and northeastern regions; [and] an additional 31 students came from 17 foreign countries."[cdxl] The school was clearly transitioning away from its trade school roots: the College of Fine Arts benefitted from a

growing national reputation of excellence, and Tech now offered bachelor's and master's degrees in addition to its two-year and three-year awards – but night school enrollment continued to grow as a result of Baker's efforts to reach out to Pittsburgh's companies. Despite the fact that Tech's students hailed from more than a thousand different local firms, according to Arthur W. Tarbell, many of Pittsburgh's "large employers of labor" still thought of Carnegie Institute of Technology as nothing more than a name; they were unaware "what an important element [its] Evening School [represented] in the economic life of the city." Post-graduation, CIT's alumni returned to their places of employment armed with better knowledge and skill sets and therefore increased earning power, contributing importantly to the productivity and prosperity of the Pittsburgh region.[cdxli]

In the year 1933, Baker successfully recruited three top German scientists to the Tech faculty, and 10 years later, Otto Stern, one of the three, won the Nobel Prize in physics, an honor that attracted the attention of the world to Tech and its host city, Pittsburgh.

Doherty and "the outlines of a modern research university"

In March of 1936, Robert Doherty, a full-time consulting engineer at General Electric and briefly Yale University's Dean of Engineering, took over Tech's presidency. Doherty led the first organized fund drive in Tech's history, raising over $4,060,000. In addition, business grants for endowed professorships from local organizations including the Maurice and Laura Falk Foundation, the Buhl Foundation, Alcoa, the Westinghouse Electric Corporation, and the American Radiator & Standard Sanitary Company, as well as from trustee George Tallman Ladd, totaled $1 million. The Carnegie Corporation awarded the school $8 million, and Westinghouse began to award fellowships to 10 students in each incoming class; within four years, 40 Westinghouse Fellows attended CIT with full tuition covered.

The Allegheny Conference on Community Development was formed in 1943. It was the key organization in the creation of the Pittsburgh Renaissance. Critical in its founding was President Doherty, who understood the need for a major regional planning effort for postwar renewal of the city. Doherty was instrumental in urging the powerful banker Richard King Mellon to become involved in the formation of the Allegheny Committee on Community Development, and Doherty served as its first chairman. Doherty and Mellon,

along with Edward Weidlein of the Mellon Institute and Willard E. Hotchkiss, the dean of humanistic and social studies at CIT, chaired a group of committees designed to study the region's struggles with economic development.[cdxlii] The 'Mellon group,' in close association with the Pittsburgh city government, was highly successful in enacting change:

> In partnership with Pittsburgh's Democratic mayor, David L. Lawrence, the Mellon group envisioned a "Golden Triangle" on the 23 acres of vacant warehouses and slums at the confluence of the Allegheny and Monongahela Rivers. Bulldozers soon cleared the area and the new Gateway Center office buildings and Point State Park rose on the site. Alcoa built a gleaming new office building – of aluminum, of course – while U.S. Steel and Mellon Bank erected a 41-story steel skyscraper near the William Penn Hotel.[cdxliii]

Due to the collaboration between President Doherty and the Allegheny Conference, the Pittsburgh Renaissance was born and effectively gave new life to the city's economy.[cdxliv]

While R.K. Mellon worked on the city itself, another member of the Mellon family, William Larimer Mellon, granted Tech $6 million in the late 1940s to found a School of Industrial Administration, which would later become known as the Graduate School of Industrial Administration (GSIA). W. L. Mellon, "dissatisfied with the caliber of managers he had been able to hire at Gulf Oil, where he was chairman," sought to establish a school that would properly train undergraduate and master's students in management.[cdxlv] There seemed to be no middle ground in the education of the managers Mellon had interviewed:

> Those with practical knowledge of industry lacked requisite academic and scientific backgrounds; newcomers with business school backgrounds lacked experience in the real world. No current university program solved this problem. Tech's Carnegie Plan, however, seemed to fit Mellon's aspirations. It combined problem solving with a humanistic and social component that could be adapted to a business school. [cdxlvi]

President Doherty, who had experienced the same frustration in his previous work at General Electric, embraced the concept with open arms. In his tenure as Yale University's Dean of Engineering, he had attempted to establish a similar program without success. The ultimate foundation of the School of Industrial Administration, an institution whose educational philosophy would "assure a thorough understanding of the economic system in which the student lives and business operates," was a breath of fresh air for President Doherty, W.L. Mellon, and the Pittsburgh economic community. [cdxlvii]

By 1948, CIT's students had no option to earn a two-year certificate or three-year diploma; the Institute only offered traditional bachelor's and master's degrees. By then,

Tech's faculty included a number of men and women with national scholarly reputations. These included Otto Stern, Edward C. Creutz and Frederick Seitz in Physics; Ernest Berl and John C. Warner, Chemistry; Robert F. Mehl, director, Metals Research Laboratory, Metallurgy; B. Richard Teare, Electrical Engineering; Warren L McCabe, Chemical Engineering; Dennistoun W. Ver Planck, Mechanical Engineering; Richard J. Duffin and J. L. Synge, Mathematics; George Leland Bach and William W. Miller, Economics; Max Schoen and B. von Haller Gilmer, Psychology; Gladys Schmitt, English; and countless others. [cdxlviii] Thirty-six percent of Tech's faculty published books or articles, gave a creative performance, or participated in an exhibition during the 1947-1948 academic year. The *Carnegie Alumnus* encouraged "increased alumni interest and activity at points distant from Pittsburgh," an attitude that was evidenced in the presence of 59 international students from 17 different countries on campus in 1948, up from 26 international students in 1928.[cdxlix] By that time, the administration endeavored to "encourage students from across the nation to take advantage of the "exceptional educational opportunities" that Carnegie Tech offered." [cdl] However, summer high school student programs were still almost exclusively local, and, "as they did in 1908 and 1928, evening students commuted to campus after working all day in Pittsburgh's mills, factories, offices and shops."[cdli]

Despite the perseverance of the night school tradition, the four research laboratories formed during this period demonstrated Tech's transformation into a full-fledged research university. The *Review of the Doherty Administration* enumerates the objectives of the university's president, including "[placing] the research resources of the institution at the service of industry and other outside agencies." [cdlii] These developments lead Fenton to conclude, "In the Carnegie Tech of 1948, the outlines of a modern research university had begun to emerge."[cdliii]

The Warner Administration

In 1950, John Christian (Jake) Warner succeeded Doherty as president. At this point, the business school ranked among the top three or four in the country, partially due to the Ford Foundation's constant financial support: business students regularly were honored with Ford awards for excellence in doctoral dissertations. [cdliv] And, CIT's Dr. Herbert A. Simon served side-by-side with several of Pittsburgh's industrial leaders on a Standing

Committee on Housing established by the Civic Unity Council, a group that worked to eliminate the city's ghettos and provide quality housing for all Pittsburgh residents.[cdlv] By the year 1965, Tech ranked 9th in the nation in terms of engineering doctorates awarded. Sponsored research at the university rose to $19.5 million by 1965 from $1 million during the 1949-1950 school year, and faculty publications rose to 665 from 182 in the same period.

President Guy Stever and the Birth of Carnegie-Mellon University

In 1965, Horton Guyford Stever accepted the office of the presidency. It was under President Stever that, on April 17th, 1967, the Trustees of the university approved a merger between Carnegie Tech and the Mellon Institute; from this merger, Carnegie-Mellon University was born! Two and a half months later, *The Pittsburgh Press* praised the exciting development: "The bright children of two proud Pittsburgh families joined hands in Oakland this weekend and promptly gave the City a 200-million-dollar wedding gift called Carnegie-Mellon University." [cdlvi]

The united university continued to give back to the local economy. A series of lectures were held in late 1965 to address Pittsburgh's unemployment problem.[cdlvii] A December 20th, 1968 letter from the Trustees to Stever resulted in the creation of a School of Urban and Public Affairs, which aspired to be "a nationally prominent contributor of men and ideas to the field of urban affairs with a particular interest and emphasis on Pittsburgh and Western Pennsylvania problems." The Trustees envisioned "a great opportunity for this School to provide assistance to the city, the state and the nation in the massive effort which is needed to educate, train and motivate managers in the field of urban affairs."[cdlviii] It was founded with a donation of $10 million from R.K. Mellon, who would maintain a close relationship through the rest of his life. Fenton concludes:

> This relationship has been mutually beneficial. The Graduate School of Industrial Administration developed the type of business leaders that W. L. Mellon desired and the business community needed. The School of Urban and Public Affairs [SUPA], now The Heinz School, has trained leaders for the public sector, just as General Mellon hoped it would. The University has contributed in innumerable ways to the Pittsburgh Renaissance, a movement set in motion by R. K. Mellon, as well as to the more recent Regional Economic Development effort in south-western Pennsylvania.[cdlix]

Thus through its development and focus, Carnegie Mellon seemed to utilize its resources more and more in efforts to promote the wellbeing of the local economy. For example, although in the 1967-68 school year, CMU's students came from 48 states and 47 different countries, the university held true to Carnegie's initial dream of a school that would serve the Pittsburgh community.

President Cyert's "Computer U"

In 1972, President Richard Michael Cyert took over for Stever. Cyert was an economist who had been on the Graduate School of Industrial Administration faculty before rising to the position of Dean of the school. The Cyert administration saw the passage into national law of the Bayh-Doyle Act in 1980, which "gave universities the right to accept ownership of intellectual properties generated with federal funds and to license them to businesses or support spin-off companies."[cdlx] Thus CMU could now profit from the discoveries of its students and faculty, and promote the creation of small, CMU-inspired, and often CMU-lead startup companies in the region. And the growing university actively pursued industrial partnerships to take advantage of its strengths, including the Department of Computer Science: in 1981, Carnegie Mellon partnered with IBM on the Andrew Network project, whose successful completion earned CMU the nickname "Computer U" and catapulted the university into the international spotlight. Such recognition helped to squash competition for the best and brightest young students in the country to attend the university and to become members of the larger Pittsburgh community.

In 1982, the Ben Franklin Technology Partnership was created by Governor Richard Thornburgh to combat economic problems by "increas[ing] the capital and financing made available to advanced technological industries, provid[ing] technical assistance and services, enhanc[ing] the skills of Pennsylvania's work force, and promot[ing] the expansion of markets for advanced technology products and services both here and abroad."[cdlxi] Heinz College Professor Rick Stafford, then the Governor's Secretary of Legislative Affairs, directly contributed to the development and implementation of this policy change.

As a result of CMU, Pitt, and Westinghouse winning a Department of Defense competition, the Software Engineering Institute (SEI) was established at Carnegie Mellon in 1984 with their first $103 million in grants, a sum that was exceeded by an additional $156 million five years later. The Software Engineering Institute championed the usefulness of corporate technology transfer in order "to move software development into practical application," a key topic of research that Cyert assured the campus community would result in countless positive effects on long-term regional economic development.[cdlxii]

The 1987 student body boasted 70 percent of students from out-of-state and 900 from 51 foreign countries. This steady increase in geographical diversity was part of Director of Admissions William F. Elliott's master plan of drawing upon a national – and even international – recruitment base, through strategies such as the now well-known "sleeping bag weekends" which allow out-of-town applicants to experience university life while staying with current students. Broadening the base to attract students from around the country and world allowed Carnegie Mellon to compete for the best of the best in their admitted class, and "freshmen in 1987 averaged 1,222 on their SATs compared to a national average of 906." [cdlxiii] Because CMU could compete with other top universities for excellent students, it was capable of forming a talented student body that could at the very least give to the community through internships and class projects while enrolled at the school, and who might remain post-graduation to head the region's top businesses – or start one of their own. Notably, at the end of the 1987 calendar year, more than a quarter of the alumni of the university were still concentrated in Pennsylvania. Many of Carnegie Mellon's graduates chose to remain in Pennsylvania after their four years, using the knowledge imparted to them by the university to the benefit of the regional economy.

In addition to individual student contributions, the university invested heavily in institution-level initiatives to promote economic development in Pittsburgh. The Center for Economic Development (CED) was established by the Heinz School in 1987 "as an applied research center designed to leverage academic resources to better understand key regional economic development issues" and to "[provide] research services and solutions for improving economic, community and workforce development in the Pittsburgh region."[cdlxiv] For example, in order to promote the ongoing development of the Allegheny County

Comprehensive Plan, in 2007 the CED assisted the McCormick Taylor engineering consulting company with an analysis of industrial employment growth, wages, spatial patterns, and specialization in Allegheny County. A CED report analyzing the economic impact of the new Carnegie Library of Pittsburgh noted that more than $91 million in economic benefits for the County could be realized, or $75 per citizen of the region, with an increase in literacy. The CED's report entitled *Who is Leaving Pittsburgh?* addressed the question of youth migration and demonstrated that the 20-29 age group was not the only category losing population – a problem increased economic development in Pittsburgh aimed to solve. The CED's 2003 State of The Industry Report detailed the contribution to the regional economy made by the technology industry. Among other measurements, the report illustrated cluster employment trends, research spending, and venture capital investments. The CED also engaged in an Entrepreneurial Pittsburgh project, which explored the relationship between research universities including Carnegie Mellon and the 'New Economy,' and a report entitled *Plugging the Brain Drain: A Review of Studies and Issues for Attracting and Retaining Talent* examined the 'brain drain' problem and strategies to address it, finding that scholarships, internships and job matching are some of the strategies used by states to retain their young, educated talent.

A 1987 *New York Times* article entitled "Clean Pittsburgh Air Symbolizes Economic Shift," published the same year the Center for Economic Development came into being, demonstrated the impact smog abatement programs supported by the Allegheny Conference had on the Pittsburgh economic community. The article noted that Pittsburgh had ceased to be the smoky city and in 1987, met Federal standards for cleanliness not met by other major cities including New York, Chicago, and Baltimore. The profile of a typical Pittsburgh worker had undergone a parallel evolution. Environmental cleanup and economic revitalization came hand-in-hand as manufacturing industries were replaced by 600 high-technology companies. Young professionals flocked to the region and the city earned a new nickname: "the New Pittsburgh."[cdlxv] Contributing to this transformation, courses in both Carnegie Mellon's Department of Engineering and Public Policy (EPP) and the School of Urban and Public Affairs (SUPA) have explored key trends in Pittsburgh

economics, including projects in 1983 and 1987 which aimed to respond to the decline of the steel industry and its disastrous impact on the Pittsburgh economy.[cdlxvi]

Spin-offs and the Mehrabian White Paper

In 1990, Robert Mehrabian became president of Carnegie Mellon. At the same time, CMU alumnus Rick Stafford became President and CEO of the Allegheny Conference on Community Development (ACCD), a position he held from 1991 to 2003. Stafford defines the Conference's goals through a "global marketplace" framework in which a given "economic region can be thought of as a product that individuals interact with, whether they're going to invest in a business there, live there, retire there, or go to school there."[cdlxvii] Thus the ACCD focused on "product improvement" – through fostering a better education and transportation system, building new sports stadiums and a convention center, improving the area's connection to the Pittsburgh International Airport, and other key initiatives. It sought to create new high-quality jobs in the region to ensure efficiency and productivity. With a quality "product" to sell, Stafford's Conference set the marketing of the region as a top priority. It also recruited some of the best and brightest students to Carnegie Mellon and Pittsburgh's other great universities and then worked to convince some of the said talent pool to stay post-graduation. The Conference also promoted the region externally – through spreading the word to the rest of the world that Pittsburgh is a great place to visit, to start a new business, to add an office for an existing business, or to hold a conference or convention.

Carnegie Mellon, however, ranked far behind both Stanford and MIT in the number of spin-off companies its students formed with only 20 up to 1992.[cdlxviii] A 1988*Pittsburgh Post-Gazette* article explained the reason for the few spin-offs: "People whose dreams don't include a mansion in Fox Chapel are less likely to run off and form companies designed to produce marketable products in Pittsburgh." But more recently, it continued, CMU has "begun encouraging professors to think more in terms of business potential and form their own companies."[cdlxix]

To combat these trends, the university conducted the 'Carnegie-Mellon survey,' which polled a broad range of large and small U.S. firms and "asked industrial research managers about the nature and scope of the influence of university research on industrial

R&D [and] asked respondents to describe the most important channels through which their firms gained access to the results of university research for application in their industrial innovation strategies."[cdlxx] With the development of the software spinoff, Lycos, the environment at Carnegie Mellon became quickly conducive to producing other new companies. Applied economist Scott Andrew Shane explains that the policies that were necessary to nurture the growth of Lycos were then institutionalized by CMU: "In its early days, before it obtained venture capital financing, Lycos was incubated in the bowels of the university's computer science building. Moreover, it received a $100,000 investment of university operating funds, which was used to purchase servers and pay for the company's marketing expenditures." [cdlxxi] Lycos' success encouraged CMU to invest university resources openly, often to the tune of $100,000 to $250,000 per company, in other potential spinoffs and to maintain policies such as "offer[ing] leasing arrangements for equipment" and "allow[ing] facilities to be used for free or at marginal cost," protecting the infant companies through their development and releasing them when they are strong enough to attract investment from venture capitalists.[cdlxxii] Because of these policies, Carnegie Mellon today boasts a disproportionately large number of spinoff companies relative to its level of technological resources. And this system has produced successful, hugely profitable companies like Lycos itself, which in 2004 was a $500-million Internet company. Fenton concludes that because of Lycos and other spin-offs, "technology transfer has begun to make substantial contributions to the economy of western Pennsylvania through licensing agreements and start-up companies."[cdlxxiii] And Carnegie Mellon University is to thank for this.

To meet their aforementioned economic goals, the Allegheny Conference approached Mehrabian in late 1992 with a request that he conduct a study of the region's civic organizations. Instead, Mehrabian decided that the clarification of a "shared vision" for the local economy was the more pressing issue, and proposed a benchmarking study that would eliminate further confusion. In November 1993, Carnegie Mellon's Center for Economic Development (CED) published a report entitled *Shared Economic Vision for Southwestern Pennsylvania* which was written primarily by Professor Richard Florida of the Heinz School and "supported by a grant from 12 foundations and four corporations and pro

bono efforts from Carnegie Mellon."[cdlxxiv] The report, which came to be known as the "Mehrabian White Paper," detailed the findings of Mehrabian's study, spearheaded the creation of the Regional Economic Revitalization Initiative - which would "gatherviewpoints, conduct town meetings, produce analyses of key issues and develop specific action plans" - and jumpstarted the Center's active involvement in regional development issues.[cdlxxv] In November 1994, a report entitled *The Greater Pittsburgh Region: Working Together to Compete Globally* was published to explain this series of developments and explore options for regional economic development and stability. Following its consideration by 126 local business leaders, the Working Together Consortium, composed of "six work groups, each headed by one or two distinguished members of the community," was formed to implement the plan with a goal of the creation of 100,000 new jobs in Pittsburgh by the year 2000. Administrators, professors, and organizations at Carnegie Mellon University both undertook the initial study and facilitated the final economic project in partnership with the Allegheny Conference and other community stakeholders. CMU played the appropriate role of a university in promoting regional economic development: "Led by President Mehrabian, it responded to an invitation from community leaders to undertake an important study. It then provided the organization and the intellectual leadership to get the project underway and to carry it to its conclusion."[cdlxxvi]

In 1994, the Carnegie Mellon Research Institute relocated to the newly completed Pittsburgh Technology Center on the Monongahela River. Following the move, President Mehrabian persuaded Union Switch and Signal, a rail transport equipment and services supplier native to Pittsburgh, to construct a $30 million building on the site. The following year, CMU opened the NASA Robotics Engineering Consortium in Pittsburgh, which develops robots for farming, hazardous environments and planetary exploration and whose land and renovation was funded by a $6.5 million state government grant.[cdlxxvii] Progress was being made, although it was slow. In 1996, the CED and The Enterprise Corporation of Pittsburgh released an *Economic Vitality Scorecard* that reported that Pittsburgh as a city still lagged behind the state and nation in forming new companies, with only 50 percent as many businesses as the national average for metropolitan regions.[cdlxxviii]

President Jared Cohon and the Carnegie Mellon of Today

In 1997, Jared Leigh Cohon became the university's new president, and he still holds that office today. Cohon's 1999-2000 strategic planning group defined four priorities for the blossoming research university. The 4th explicitly called for "leveraging Carnegie Mellon's global impact to support the economic, social and cultural success of Pittsburgh and southwestern Pennsylvania."[cdlxxix] The Cohon administration has met this goal through promoting community internships by Carnegie Mellon students and staff, including a "Computer Science in the Community" course in which computer science students assist local schools and organizations in the development of computer programs. Another Cohon initiative involves technology transfer, a trend that in 1998 garnered over $30 million in revenue for the university from 34 patent applications, 15 licensing agreements, and the development of five local companies.[cdlxxx] The Ben Franklin Technology Partnership and Carnegie Mellon have continued to collaborate in economic outreach in recent years. The Partnership has invested in plextronic technology developed at CMU and between 2000 and 2002 awarded $500,000 to Carnegie Mellon-based Vivísimo, the institution responsible for the initial creation of the internet search engine Lycos in the 1980s and other subsequent web creation tools.

Dr. Donald Smith, a 1994 graduate of the Heinz School, now chairs a committee that coordinates the economic development programs of Carnegie Mellon and its Oakland neighbor, the University of Pittsburgh. As Vice President for Economic Development, he oversaw the two universities' contribution to the regional economy, including talent attraction to and talent development in Pittsburgh and its surroundings. Combined, Carnegie Mellon and Pitt represent more than $800 million of the sponsored research funding that drives internationally acclaimed advances in computer science, robotics, biomedical research and engineering in Pittsburgh.[cdlxxxi] The research and development funding attraction and the money CMU and Pitt bring in have created 31,000 local jobs, making the University of Pittsburgh the 2nd most important employer in the city, with Carnegie Mellon ranked in the top 20. In addition to employing Pittsburgh's workers, CMU is a top buyer of local food and supplies. Perhaps most importantly, the presence of a prestigious university like CMU has attracted top businesses to the region, including

Google, Intel, Apple, and many pharmaceutical companies, in addition to generating successful startup companies like Lycos.

Dr. Smith's recent work has included collaboration to save the threatened Ben Franklin Partnership (BFP). He has worked on the Pittsburgh Digital Greenhouse (PDG) project, an economic development initiative started in June of 1999 and focused on the digital multimedia and digital networking markets. The PDG has contributed to regional economic development through "creating jobs by attracting new companies to the region, helping local members grow, and fostering start-ups."[cdlxxxii] Smith collaborates with other university and industry leaders to promote economic development through supporting entrepreneurs on campus and reworking CMU's technology transfer policies. He also engages in research to study trends in university spinouts (300 companies in the region are spinouts from the two universities) and their economic impact. His work includes "targeted company attraction," in which he works to attract top companies to the region (like Intel, Apple, Renal Solutions, and Google), and, through "product development" of the Pittsburgh area, persuade them to stay and build new facilities here. In addition, he works with the Collaborative Innovation Center (CIC), whose "vision… is to create the optimal environment to serve the next generation of university–industry collaboration." Within its walls, CMU research faculty and students "work with industry to develop new technologies, business ventures, and jobs." As Dr. Mark Kamlet, Carnegie Mellon provost and senior vice president, explains, "the building creates a nexus for industry, federal, and university research—supporting start-ups, enhancing competitiveness for federal research funding, and creating a landing zone for companies."[cdlxxxiii]

In 2002, an organization called Innovation U ranked Carnegie Mellon University in the top 10 schools in the country in terms of economic development impact on its host city. The rankings were drawn up through reputation assessments from university peers around the country. Carnegie Mellon represents the smallest university on the top-ten list and one of only two private universities, along with Stanford. Similarly, "Saviors of our City," an organization based out of Northeastern University, ranked CMU in the top 10 urban savior universities in 2007.

But none of this would have been possible without the fresh faces and ideas that Carnegie Mellon attracted to the region. Pittsburgh is home to the highest national percentage of people who have lived in the same house for their whole lives, and more people who were born in the surrounding area still lives here than another other city in the country. Judging by these facts, Pittsburgh is one of the most comfortable cities in the country and maybe the world, and a guidebook has consistently rated it the "most livable" - but innovation and new ideas are born when people are uncomfortable, and a city needs diversity to break out of its comfort zone. Dr. Smith explains that we live in a globalized economy in which being exposed to different cultures, ideas, and business problems and partners are a hugely important part of doing business.

And the diversity of the student body at CMU provides exposure to different regions of the nation and even the world. At CMU in particular, today only about 8 percent of the student body was born or raised in Pittsburgh, and 26 percent of students are international, making it one of the most international universities in the country! Last year, about 18 percent of graduating seniors chose to stay in the city post-graduation, taking with them a multicultural understanding and the skills and knowledge necessary to succeed as employees at Pittsburgh's top companies. And CMU has used a network of global campuses – in Australia, the Middle East, China, and Greece – to the region's benefit. These global campuses open new markets to Pittsburgh's corporations and, conversely, help businesses from those countries to participate in the Pittsburgh market. As Dr. Smith concludes, "You can't be a top-25 university in the U.S. or the world with a local focus, so some of that has been eliminated in the push to be a global player." [cdlxxxiv]

Carnegie Mellon's evolution from a strictly local trade school to a respected national university has better enabled it to participate actively and effectively in promoting economic development in Pittsburgh. While Carnegie Mellon's students increasingly hail from outside the city limits, many still choose to accept employment in Pittsburgh following graduation, and even those who don't participate in organizations and internships during their four years of enrollment that indirectly bolster economic growth. The university's success has attracted new companies to the region in the same way that universities like Stanford and Berkeley facilitated the growth of the Silicon Valley region in

California. Armed with the most qualified students and faculty, millions of dollars invested in research, and partnerships with the region's most powerful companies, CMU can best address Pittsburgh's economic concerns with research, money, and manpower. Andrew Carnegie would be proud.

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[cdxxix] Edwin Fenton, *Carnegie Mellon 1900-2000: A Centennial History*, (Pittsburgh: Carnegie Mellon University Press, 2000), 9.
[cdxxx] Tarbell, *The Story of Carnegie Tech*, 27.
[cdxxxi] Fenton, *Carnegie Mellon: A Centennial History*, 28.
[cdxxxii] Ibid., 25.
[cdxxxiii] Tarbell, *The Story of Carnegie Tech*, 48.
[cdxxxiv] Ibid., 61.
[cdxxxv] Fenton, *Carnegie Mellon: A Centennial History*, 33.
[cdxxxvi] Andrew Carnegie, "From the Founder," *The Carnegie Thistle*, 1906.
[cdxxxvii] Ibid., 139.
[cdxxxviii] Tarbell, *The Story of Carnegie Tech*, 165.
[cdxxxix] "Discoveries Brought to Light at International Coal Conference," *The Tartan*, November 2, 1928.
[cdxl] Fenton, *Carnegie Mellon: A Centennial History*, 76.
[cdxli] Tarbell, *The Story of Carnegie Tech*, 97-8.
[cdxlii] Sherie Mershon, "Corporate social responsibility and urban revitalization: The Allegheny Conference on Community Development, 1943-1968*"* (Unpublished PhD. Dissertation, Department of History, CMU, 2000), 167-9.
[cdxliii] Fenton, *Carnegie Mellon: A Centennial History*, 143.
[cdxliv] Mershon, "Corporate social responsibility," 162-4.
[cdxlv] Fenton, *Carnegie Mellon: A Centennial History*, 102.
[cdxlvi] Ibid., 144.
[cdxlvii] Ibid.
[cdxlviii] Ibid., 114.
[cdxlix] Ibid., 118.
[cdl] *Carnegie Alumnus* quoted in Ibid., 118.
[cdli] Fenton, *Carnegie Mellon: A Centennial History*, 121.
[cdlii] Glen U. Cleeton, *The Story of Carnegie Tech, II: The Doherty Administration, 1936-1950* (Pittsburgh: The Carnegie Press, 1965), 66.
[cdliii] Fenton, *Carnegie Mellon: A Centennial History*, 109.
[cdliv] Ibid., 154.
[cdlv] "People in Ghettos," *The Pittsburgh Courier*, March 10, 1951.
[cdlvi] "A University is Created," *The Pittsburgh Press*, July 2, 1967.
[cdlvii] "Lectures on Unemployment Problems at Tech," *The Pittsburgh Courier*, September 25, 1965.
[cdlviii] Fenton, *Carnegie Mellon: A Centennial History*, 145.
[cdlix] Ibid., 147.
[cdlx] Ibid., 256.
[cdlxi] Necia Hobbes, "Memo: The Ben Franklin Partnership" (Unpublished paper, Pittsburgh: Carnegie Mellon University Press, April 26, 2008), 7-8.
[cdlxii] Fenton, *Carnegie Mellon: A Centennial History*, 202.
[cdlxiii] Ibid., 225.
[cdlxiv] Center for Economic Development (CED), "Center for Economic Development," Carnegie Mellon University, http://www.cmu.edu/ced/index.html (accessed October 15, 2008).

[cdlxv] Lindsey Gruson, "Clean Pittsburgh Air Symbolizes Economic Shift," *The New York Times*, May 10, 1987.
[cdlxvi] Carnegie Mellon University, *Milltowns in the Pittsburgh region: conditions and prospects*, (Pittsburgh: School of Urban and Public Affairs, Dept. of Social Science, Dept. of Engineering and Public Policy, 1983).
[cdlxvii] Rick Stafford, interview by Liz DeVleming, September 16, 2008. Stafford is now a Distinguished Public Service Professor in the Heinz College.
[cdlxviii] Fenton, *Carnegie Mellon: A Centennial History*, 256.
[cdlxix] Carnegie Mellon University Archives, Robotics Box, Folder 63, Jim Gallagher, "From labs to product lines – Some scientists don't dream of commercializing research," *Pittsburgh Post-Gazette*, September 27, 1988.
[cdlxx] David C. Mowery, *Ivory tower and industrial innovation: university-industry technology transfer before and after the Bayh-Doyle Act in the United States* (Stanford, CA: Stanford University Press, 2004), 28.
[cdlxxi] Scott Andrew Shane, *Academic Entrepreneurship: university spinoffs and wealth creation* (Northampton, MA: Edward Elgar Publishing, 2004), 73.
[cdlxxii] Ibid., 75-6.
[cdlxxiii] Fenton, *Carnegie Mellon: A Centennial History*, 256.
[cdlxxiv] Ibid., 258.
[cdlxxv] Regional Economic Revitalization Initiative, *The greater Pittsburgh region: Working together to compete globally* (Pittsburgh: Carnegie Mellon University Press, 1994), 8.
[cdlxxvi] Fenton, *Carnegie Mellon: A Centennial History*, 258.
[cdlxxvii] Ibid., 249.
[cdlxxviii] "Pittsburgh Lags Behind State, Nation In Forming New Companies," *The Pittsburgh Courier*, May 4, 1996.
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[cdlxxxi] Lauren Ward, "Smith Leverages University Strengths to Drive Economic Development in Pittsburgh," *Carnegie Mellon Today*, April 18, 2005.
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[cdlxxxiv] Donald Smith, interview by Liz DeVleming, September 4, 2008.

Appendix I: Notes on the University and Regional Environmental Issues[95]

Carnegie Tech and Carnegie Mellon have been involved in regional environmental issues at different times over the course of the history of the school with the heaviest involvement occurring in the last 25 or so years. Unfortunately, although this subject deserves a full chapter, for logistical reasons the chapter was not completed.

Perhaps historically the major environmental issue in Pittsburgh has been smoke and smoke control. Even though many in the 19th century had found smoke to be primarily beneficial or at least acceptable because of its association with economic progress, by the early 20th century demands for smoke control had accelerated. Carnegie Tech was early involved in this push for smoke control. President Hamerschlag, Tech's first President, served as the initial chairman of the Pittsburgh Smoke Abatement League upon its creation in 1917. The interest of Carnegie Tech in coal and coal research has been mentioned in earlier chapters of this report, but coal research at the school was also accompanied by concern over its environmental costs. The series of three international conferences on coal held at the university in 1926, 1928 and 1931 also addressed the issue of smoke control. Environmental topics discussed included experiments with cleaner burning coal, smokeless coal and possible uses discarded byproducts. The 1931 conference featured an entire series entitled "Smoke and Dust Abatement" dedicated to the harmful effects of smoke. Attempts at smoke control in Pittsburgh continued sporadically through 1941, when the City Council passed a stringent smoke control law. In 1940, Sumner Ely, a professor in the Mechanical Engineering Department left Carnegie Tech to become the

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[95] Material for the smoke control and nine mile run sections of this Appendix were assembled by John Ireland, a member of the project class. The section was prepared by the course Instructor.

Superintendent of the Pittsburgh Bureau of Smoke Prevention where he served for many years. It was during Ely's tenure that smoke control finally became effective during the late 1940s and 1950s.

Aside from the issue of smoke control, Carnegie Tech and later Carnegie Mellon do not seem to have been deeply involved in Pittsburgh environmental issues until the 1970s and after although individual faculty members conducted research on related subjects. By the mid-1970s, however, several newer divisions of the university developed an interest in Pittsburgh environmental issues reflecting the growth of the Environmental Movement on the national level. These divisions were the newly formed Department of Engineering and Public Policy (EPP), the School of Urban and Public Affairs (SUPA, later the H. J. Heinz III College), and the Applied History Program (later History & Policy), as well as Civil Engineering (later the Department of Civil and Environmental Engineering).

Faculty from these divisions served on city, county, and regional bodies concerned with the environment and especially issues concerning air and water. A critical vehicle for involving the students and the University in environmental issues was the project class, a method of teaching in which students would work on a real world problem under the direction of faculty and present their findings to a review panel of experts. These project classes often had an interdisciplinary nature, combining undergraduates from engineering with master's students from SUPA. The project course was later adopted by the History & Policy Program and become its capstone experience.

Another major outreach effort by the University involved work on so-called brownfields, created by the collapse of steel and other industrial plants in the 1970s and 1980s. CMU has been heavily involved in the redevelopment of a number of area brownfields, beginning with the

Pittsburgh Technology Center in the early 1980s. The research park was built on the former site of the Jones & Laughlin Steel plant through a collaboration of Carnegie Mellon, the University of Pittsburgh, and the Urban Redevelopment Authority. The first buildings on the site were those of Carnegie Mellon and the University of Pittsburgh, but they have since been joined by a number of other research-oriented structures constructed by major firms.

Another major brownfields project that involved the University was that involving the redevelopment of Nine Mile Run, a beautiful valley next to Pittsburgh's Frick Park that had been used as a slag dumping ground for fifty years. The redevelopment of the Nine Mile Run site was begun by the City of Pittsburgh in the early 1990s, with the intention of building a major housing complex on top of the slag. The original plan for Nine Mile Run (NMR) involved the culverting of the NMR stream running at the bottom of the valley. Visiting Professor of Art Tim Collins and his wife Reiko Goto, also an environmental artist, objected to the culverting of the stream, arguing that it should be restored and made the center piece of a green corridor through the valley. Collins assembled a group of faculty from CMU who were joined by both faculty from the University of Pittsburgh and outside experts in what was known as the Nine Mile Run Greenway Project. Eventually, they were able to convince the Mayor not to culvert the stream and to make it a major part of the greenway. With help from the U.S. Army Corps of Engineers, the greenway project, along with the housing, became one of the most admired brownfields redevelopment sites in the nation. Students as well as faculty from CMU have been heavily involved in the project as an environmental learning experience.

In addition to the NMR project, Tim Collins and Reiko Goto launched the 3 Rivers 2nd Nature Program. The project addressed the meaning, form, and function of public space and nature in Allegheny County. The project focused upon the three major rivers and the streams and

watersheds of the county. This five-year project revisited questions of nature and post-industrial public space, first addressed on the Nine Mile Run Greenway Project. A number of students were also involved in this program as well as other faculty. Like the NMR project, it had extensive outreach aspects involving many members of the public as well as producing an ecological design plan and a water quality policy.

In the late 1990s, interdisciplinary faculty from the NMR project launched the CMU Brownfields Center, initially funded by the National Science Foundation. Today the Brownfields Center, under the director of Deborah Lang, (CMU Civil Engineering Ph.D., CMU), has been heavily involved in a number of brownfield restoration projects throughout the region. This Center, like the NMR project, also serves as a valuable training ground for undergraduate and graduate students.

Other CMU faculty members, especially from the Departments of Civil and Environmental Engineering and Engineering and Public Policy, have been active in public bodies studying air and water problems in the region.