

## INTERESTS TRANSCENDED: THE EARLY HISTORY OF CARNEGIE TECH

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I will do everything for Pittsburgh that it will let me. I would be delighted to give it many millions. In particular, I would like to build a great school of manual training for the young men of Pittsburgh.<sup>1</sup>

**A**NDREW CARNEGIE, in the twilight of a business career unparalleled for its success, made clear his commitment to his adopted city. Pittsburgh and its vicinity had no school of any kind in which a young man could acquire the rudiments of a trade. A technical institute, Carnegie thought, would serve as an excellent complement to Carnegie Institute, composed of the library, museum, music hall and art gallery, and would advance the welfare of the region he loved.

In November 1900, the Pittsburgh Board of Education asked city officials for one hundred thousand dollars to begin a technical school. The opportunistic Scot seized the occasion to propose his own venture. On November 15, 1900, Carnegie addressed a letter to the Mayor:

For many years I have nursed the pleasing thought that I might be the fortunate giver of a technical institute for our city fashioned upon the best models, for I know of no institution which Pittsburgh, as an industrial center, so much needs . . . my heart is in the work.<sup>2</sup>

Carnegie repeated this pledge one month later. In a letter addressed to William N. Frew, President of the Carnegie Institute's Board of Trustees, he said: "We are all for Pittsburgh, now and forever, and it is Pittsburgh which is to benefit by this new institution."<sup>3</sup> On January 28, 1901, the Pittsburgh City Council adopted a resolution which accepted Carnegie's offer for the city.

Andrew Carnegie believed that technical training played a vital role in the development of American industry. He pointed out that England had ignored general and technical education in the first half

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1 "Pittsburgh Day by Day," *Pittsburgh Sun Telegraph*, October 17, 1927.

2 *Plan and Scope of the Proposed Carnegie Institute of Technology* (Pittsburgh, 1903), 3.

3 *Ibid.*, 7.

of the nineteenth century, and she paid the price later. In 1900, for example, the Carnegie Steel mills alone produced four million tons of steel; all of England produced only five million tons. Unlike the English case, Germany's rapid industrial growth was based upon her secondary technical education. *The Independent* magazine emphasized the need for technical training:

For two things is our country distinguished, for its teaching of liberty and for its inventions and manufactures. If we are to keep our preeminence in industry it must be by developing industrial education in all its highest technical ways. Such industry it is which has given its preeminence to Pittsburgh, and that preeminence is to be maintained not simply by its store of coal, but by such education as this Institute will provide, drawing to it those who will be captains of its industry and of the industry of the country.<sup>4</sup>

The times also demanded education that would directly meet the needs of the workers. Education would lift the level of life and happiness for the wage worker, Carnegie contended. In his letter to the Mayor, he cited a number of great men who began as manual laborers; even Ulysses S. Grant had once worked as a tanner. Echoing this sentiment, another article in *The Independent* argued that a technical institute would produce skills which would create prosperity, comfort, and wealth for the people at large:

Because Mr. Carnegie's wealth came through the arts of manufacture it is natural that he should give his beneficence this direction. He, therefore, founds a great school which will teach the methods of the handicrafts, which are the sources of both comfort and great wealth.<sup>5</sup>

Andrew Carnegie wanted to aid those who wished to better themselves. He argued that philanthropy could not function among the unappreciative. No one deserved an education merely because he was poor; genuine desire and a willingness to comply with the donor's conditions were further requirements. And the donor always saw the "conditions" clearly.

Mr. Carnegie distinctly puts the technical schools first in importance. There are other departments connected with The Institute, but the modern, up-to-date technical schools he cares for most. It is with the common people that he is concerned, and so he wants foundrymen and miners to be able to give their sons the best education for practical use.<sup>6</sup>

The proposed venture in Pittsburgh had its roots elsewhere. As early as 1880 Andrew Carnegie had given evidence of his interest in technical, rather than classical, education. He had provided a fund of

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4 "Pittsburgh and Carnegie," *The Independent*, April 11, 1907, LXII, 865.

5 *Ibid.*, 864-5.

6 *Ibid.*, 865.

four million dollars for the twenty-seven thousand inhabitants of his native Dunfermline in Scotland:

The endowment was all to be used in attempts to bring into the monotonous lives of the toiling masses of Dunfermline more of sweetness and light; to give to them, especially the young, some charm, some happiness, some elevating conditions of life, which residence elsewhere would have denied.<sup>7</sup>

The money was used for baths, parks, gymnasiums, libraries, and a technical school. Even the circulation of books, the librarians noted, demonstrated the practicality of the reading audience. Circulation figures showed that Dunfermline readers read less fiction than people who patronized other libraries in the country. Nor did they read "books of merely ephemeral interest . . ." <sup>8</sup> Rather, they read books that influenced great men "with the object of stirring their emulation."<sup>9</sup>

The Lauder Technical Institute at Dunfermline was the special pride of Carnegie. George Lauder had originally taught him the value of a technically trained mind. Competently trained people were needed to play their part in the world's work. The Institute emphasized arts and crafts in which "No set standard of artistic attainment is demanded, the only entrance qualification being that each student shall undertake to use to the utmost the facilities which are freely offered to him."<sup>10</sup> At Pittsburgh the same zeal would be required, but the standards would be stricter and the purposes more urgent.

Although Andrew Carnegie gave \$33,894,443 to higher education, he gave nothing to colleges such as Harvard, Yale or Princeton. These schools were well endowed, their students came largely from the upper classes of society and they specialized in liberal arts and professional pursuits. As a friend of the middle and lower classes, Carnegie gave money for better science labs, trade schools, and engineering training. The typical recipients of his beneficence would be Cooper Union and Stevens, Franklin, Tuskegee, and Hampton Institutes. A visit to Keighley Mechanics Institute in Yorkshire, England, in 1900 inspired him further. Here he saw a school in which instruction was coordinated with the needs of local industry. In Pittsburgh he would raise the educational level of the masses and accentuate "handication" before "headication."

Pittsburgh provided Mr. Carnegie with the land for his school on February 13, 1903. The site was thirty-two acres in the "rough,"

7 Samuel Harden Church, "Andrew Carnegie's Endowments at Dunfermline," *Survey*, May 4, 1912, XXVIII, 211.

8 *Ibid.*, 219.

9 *Ibid.*

10 *Ibid.*, 218.

an old hollow and orchard east of Schenley Park. The gift of one million dollars in five per cent gold bonds, an endowment fund of two million dollars and one hundred thousand dollars a year for operating costs could now be put to use.

The Board of Trustees of the Carnegie Institute assumed power to administer the new Institute. The Plan and Scope Committee consisted of twenty-seven men chosen by Carnegie and nine more who represented the city of Pittsburgh. The Committee adopted a broad plan of secondary technical education. The school was not to encroach upon the purposes of universities or the public schools. "Rather in every instance the courses should supplement, broaden, and enlarge the existing systems of education and give their principal aid to those who are at present but partially or not at all accounted for."<sup>11</sup> Courses were aimed at the needs of the great industries in the Pittsburgh district. That education was most lasting and effective which was directly related to the life work of the individual. Evening courses would be offered for adults, "since the most likely path to promotion lies in furthering studies in their field of employment."<sup>12</sup>

Each of the four Carnegie Technical Schools had specific practical goals.

1. *Apprentices and Journeymen* — to educate mechanics in the manufacturing and building trades.
2. *Science and Technology* — to train draftsmen, foremen, engineers' assistants, subordinate executives, and positions above hand mechanics where intelligence and technical information were more essential than manual dexterity.
3. *Fine and Applied Arts* — to provide comprehensive preparation in fine arts, but mainly courses to produce skilled engineers and art workers in the industrial application of the plastic arts.
4. *Margaret Morrison Carnegie College for Women* — to provide vocational training in secretarial studies, household economics, costume design, and general science.<sup>13</sup>

On November 10, 1903, Carnegie appointed Arthur Hamerschlag of New York City as Director of the schools. Recommended to Carnegie by President Robert F. Cutling of Cooper Union, the thirty-one-year-old Hamerschlag symbolized the school that Carnegie envisioned. An East Side boy, Hamerschlag had overcome the severest

<sup>11</sup> *Plan and Scope*, 16.

<sup>12</sup> *Ibid.*, 18.

<sup>13</sup> *Ibid.*, 25-6.

handicaps by hard work, resourcefulness, and native ability. He had learned the rudiments of various trades at the Hebrew Technical Institute in New York City, where he became superintendent.

In Pittsburgh Hamerschlag took the Carnegie Technical Schools to the community even before the school opened. He set up science lectures in eight centers; a total of nineteen thousand people attended them. After the groundbreaking festivities for Industries Hall on April 3, 1905, other building began with little or no ceremony. Like busy, materialistic Pittsburgh, Hamerschlag was interested in concrete results.

The advent of the Carnegie Technical Schools provoked reactions in educational circles, much of it laudatory. The philosophy of the Pittsburgh school seemed a useful instrument for those who opposed the elective system of the late nineteenth century and argued that "Next to athletics, the chief focus of undergraduate interest was to be found in the clubs and fraternities."<sup>14</sup> Clarence Birdseye's *Individual Training in Our Colleges* cited the failure of American higher education to prepare students for the world. "The antithesis of this wasteful system is found in the methods of The Carnegie Technical Schools at Pittsburgh."<sup>15</sup> Birdseye welcomed the radical departure from the usual educational standards; here was a school founded on the principles of a trained businessman, not those of college graduates. Professors demonstrated marked success in their own professions rather than mere academic degrees. Thus, they could be in touch with the ordinary problems of business life, and "not merely good instructors in non-practical courses."<sup>16</sup> Birdseye called the project at Pittsburgh revolutionary and educationally heretic. . . . "What we need in many hidebound institutions is revolution, panic and thorough reorganization along common-sense lines,"<sup>17</sup> he said. Birdseye's enthusiasm for the educational innovations at Pittsburgh betrayed him on occasion. He contended that Director Hamerschlag interviewed all prospective students personally, when actually the heads of the four schools conducted these interviews. Birdseye also insisted that the Institute granted diplomas only to graduates who promised to continue in the line or profession for which they were educated. "If a mechanical engineer goes into the world and becomes a lawyer, he will not receive his degree

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<sup>14</sup> Arthur M. Schlesinger, *The Rise of the City, 1878-98* (New York, 1903), 208.

<sup>15</sup> Clarence F. Birdseye, *Individual Training in Our Colleges* (New York, 1907), 253.

<sup>16</sup> *Ibid.*, 266.

<sup>17</sup> *Ibid.*

in mechanical engineering.”<sup>18</sup> Again, Birdseye claimed too much. Henry W. Minnemeyer, who received a diploma in mechanical engineering in 1911, became Assistant Secretary of the Pittsburgh Federal League Baseball Club. Elmer Carlson, a 1916 mechanical engineering graduate, took his first job in real estate.

Martha Root, writing in *The World Today*, also lauded the new departure in education at Carnegie. Noting that its four schools had attracted students from thirty-four states and seventeen foreign countries by 1911, Miss Root predicted that “The Carnegie Technical Schools are turning out young men and women who will make phenomenal industrial history during the progress of the world within the next few decades.”<sup>19</sup> Just as Mr. Carnegie had seen the possibilities in the steel mills, now in the Carnegie Technical Schools “he foresaw that the raw and partly finished products could be so tempered and refined that the educational output would not only find a ready market, but the men and women thus trained would become human, far-famed armor plate.”<sup>20</sup>

Miss Root noted that the School of Industries trained for unusual practicality and adaptability; six building trades and six machinery trades were taught. The School of Science and Engineering was no place for the mediocre. Mere passing grades were not enough. Each student had to demonstrate excellence in the major portion of his work. Through it all, “Director Hamerschlag knows exactly how to knit learning and living, not into a blue stocking, but into a resourceful and economically useful citizen.”<sup>21</sup>

Praise flowed even more freely from *The Carnegie Alumnus*. “It does not require a prophet, nor yet a seer, to say regarding the founder and endower of these splendid institutions, that long after the name and fame of Andrew Carnegie is forgotten, his name, works and influence as The School Master will go down as a benediction into time.”<sup>22</sup> Unabashedly, the *Alumnus* found “An institution ranking as high as any institution or college on this continent.”<sup>23</sup>

Others were openly critical of the value of practical education. Superintendent Albert P. Marble of the Worcester, Massachusetts,

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18 *Ibid.*

19 Martha L. Root, “The Carnegie Technical Schools,” *World Today* (June 1911), XX, 704.

20 *Ibid.*, 707-8.

21 *Ibid.*, 710.

22 *Carnegie Institute of Technology Alumnus, 1914-19* (Pittsburgh, 1920), I, No. 4, 12.

23 *Ibid.*, 15.

schools was hostile. "There is no information stored up in the plow, hoe handle or steam engine; but there is information stored up in books. . . . The saw is brought into the recitation room, and the teacher says 'now saw.' It is a thing that does not belong in the school at all. It belongs outside, and ought to be attended to outside."<sup>24</sup>

In spite of these reactions, there is ample evidence that the educational philosophy at the Carnegie Technical Schools was neither innovative nor radical. The relationship between education and national progress had been the theme of the Philadelphia Centennial Exposition of 1876. The United States hoped to demonstrate that she was a power to be reckoned with for industrial supremacy. But, in fact, a display of tools from Moscow and St. Petersburg stole the show. It was all the work of Victor Della Vos, director of The Moscow Imperial Technical School, a school created in 1868 to master the practical phases of work. President John Runkle of the Massachusetts Institute of Technology saw the radical pedagogical innovation of the Russians as "the philosophical key to all industrial education."<sup>25</sup>

American education was never the same thereafter. A School of Mechanical Arts was set up at the Massachusetts Institute of Technology in 1876 to provide manual education "for those who wish to enter upon industrial pursuits . . . to prepare people realistically for life in an industrial society."<sup>26</sup> Calvin Woodward of Washington University in St. Louis decried the fact that colleges were producing little else but candidates for Milton's class of gentlemen. In 1879 he established The Manual Training School of Washington University, a three-year secondary school. Carnegie thus had several models to imitate.

Revisions in nomenclature at Carnegie revealed change and growth in the institution. The faculty and early graduates were concerned because they were not readily accepted by the academic community. Faculty recruitment was difficult, since the school was not rated as a college. Initial graduates received only certificates, yet they were forced to compete with those who held degrees. Often denied membership in technical societies and university clubs, Carnegie graduates urged a fourth year of study, which was adopted in 1910. As a result, the state of Pennsylvania granted Carnegie the power to confer degrees in 1912. Graduates of Science and Engineering and those in architecture and interior decorating received degrees at the

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<sup>24</sup> Lawrence A. Cremin, *The Transformation of the School* (New York, 1961), 30.

<sup>25</sup> *Ibid.*, 25.

<sup>26</sup> *Ibid.*

fifth commencement in 1912; the School of Industries awarded degrees in 1915. Thus, the School of Mechanics and Journeymen had become the School of Industries, certificates had become degrees, and in 1912 the Carnegie Technical Schools had become the Carnegie Institute of Technology.

An examination of the occupations and locations of Carnegie graduates in the period 1908-19 reveals that the Carnegie Technical Schools did not have the impact on Pittsburgh industry that had been anticipated by the founder. Failure was more noteworthy than success. The most significant accomplishment was the fact that seventy per cent of the 574 graduates of the School of Industries began work in Greater Pittsburgh industries. These figures corresponded very closely with the number of Carnegie Tech graduates whose homes were in the Pittsburgh area.<sup>27</sup>

However, graduates from the School of Science and Engineering were much less successful in securing employment in the city. Students in this division were the special pride of the school in the early days, since their training was considered the most thorough. Yet, in the period 1908-19, only forty-one per cent of these graduates were employed by firms in Greater Pittsburgh.<sup>28</sup>

The experience was similar in the School of Applied Arts. Exclusive of drama, music, and fine arts, 107 students with "practical" skills graduated in the period 1908-19. Of this number only thirty, representing twenty-eight per cent of the total, remained in Greater Pittsburgh.<sup>29</sup>

The altruistic hopes that Carnegie Tech graduates would become "captains of industry" also proved unfounded. Only twenty-two per cent of the 378 Industries graduates held supervisory positions in Greater Pittsburgh by 1919.<sup>30</sup> In spite of the fact that the School of Science and Engineering specified training for positions as foremen, engineers' assistants, and subordinate executives, only twenty per cent of these graduates occupied such roles locally in 1919. Of the 437 graduates in Science and Engineering who located in other areas of the country only thirty-one per cent held positions above mere manual labor.<sup>31</sup> Thus, Carnegie Tech was not producing industrial leaders for Pittsburgh in particular and American industry in general.

<sup>27</sup> *Bulletin of the Carnegie Institute of Technology, Register of Graduates, 1908-19* (Pittsburgh, 1920), 36-61.

<sup>28</sup> *Ibid.*, 29-35.

<sup>29</sup> *Ibid.*, 87-125.

<sup>30</sup> *Ibid.*, 36-61.

<sup>31</sup> *Ibid.*, 87-125.

Several factors help to explain the failure of the proposed marriage of Carnegie Tech and Pittsburgh industry: lack of business cooperation and foresight, fluctuations in the economic climate of the country as reflected in Pittsburgh, local living and working conditions, and the uncharted, chaotic development of the city. Pittsburgh managers freely admitted doing little planning for their work force. Although they complained of the dearth of skilled labor, they had been abandoning their system of apprenticeship even before the advent of Carnegie Tech. Industrial leaders felt that apprenticeship was unprofitable. There was no assurance that once trained by a company, a worker would remain with it. "Firms rely on stealing, rather than hiring hands."<sup>32</sup> Of the twenty-three leading firms in the United States training their own workmen, only one, Westinghouse Electric and Manufacturing Company, was from Pittsburgh. Westinghouse reported training 779 workers from 1909-14; of these 133 graduated from the training course, and only sixty-three remained with the company.<sup>33</sup>

There is no evidence to justify the fact that the management of Pittsburgh industries made such concerted efforts to develop or attract a labor force as was implied in an article that appeared in *School and Society* in August of 1916:

After the experience of the first ten years no better indication can be had that the training at Carnegie Tech has been in the right direction than the willing cooperation of various manufacturers, employers and trade organizations as evidenced by their readiness to take the graduates in their employ and the help given in working out the courses.<sup>34</sup>

Carnegie Tech made concerted efforts to cooperate with Pittsburgh industry. President Hamerschlag, declaring that "We should make a careful study of what graduates will have to do in industry and see to it that these functions are trained for in college,"<sup>35</sup> appointed Dr. Edward K. Strong as chairman of a committee "to find out what industrial executives need to know." In its analysis of Pittsburgh companies, the committee reported that executives cooperated only superficially and "refused to do any work for us."<sup>36</sup> Company managers complained that they were "too busy" to talk over their work with the committee. Dr. Strong concluded that "It is interesting to note that an

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32 Paul A. Douglas, *American Apprenticeship and Industrial Education* (New York, 1921), 87.

33 *Ibid.*, 226.

34 "The School of Applied Industries of the Carnegie Institute of Technology," *School and Society*, August 12, 1916, IV, No. 45, 250.

35 *Carnegie Institute of Technology Technical Journal* (Pittsburgh, 1921), 17.

36 *Ibid.*, 19.

educational institution is more concerned than business firms with what executives actually do." 37

Pittsburgh's industrial hierarchy made little effort to benefit from any intelligence that workers might possess. Suggestions for improving working methods met with such responses as "Never mind thinking, you are not paid to think. Do as you are told, we'll do the thinking." 38 Such attitudes discouraged young men from entering technical schools. The School of Industries at Carnegie Tech produced only thirty-six graduates in 1914, as compared to eighty-five graduates in 1909. 39 *The Pittsburgh Survey* reported that:

The Carnegie Institute of Technology stated that the graduates of the craftsmen classes established in the early years received no more than the ordinary workman's wage and he therefore encountered considerable difficulty in securing students, as the boys consider the time spent at the school wasted. The Pittsburgh employers failed to see the advantage in hiring such men or in encouraging their training. 40

The Mesta Machine Company, a large Pittsburgh machine shop producing engines of all kinds, as well as large mill and other machinery, seemed to be an exception to the overwhelming indifference of Pittsburgh industry to Carnegie Tech. In 1910 the company sent its apprentices to the Carnegie Technical Schools, "where practical courses in the School of Applied Industry fitted men to be foremen in shops and the like." 41 However, only one of the apprentices, Albert MacMillan of the class of 1916, graduated. Later he became a foreman with Mesta. Charles W. Dahlinger of the Carnegie Institute Board of Trustees, in a speech delivered before the Pittsburgh Association of Credit Men at the Fort Pitt Hotel in January of 1911, urged closer industry-school ties:

The cornerstone of all Germany's marvelous progress is wisely diverted education. . . . Pittsburgh already has the nucleus of all these schools in The Carnegie Technical Schools. . . . Proprietors of manufacturing establishments should be made to see the advantage of a technical education, and lend their assistance in popularizing and improving this school. 42

Fluctuations in the economic climate of Pittsburgh seemed to be a further deterrent to the employment of Carnegie Tech graduates. Pittsburgh was a city of contradictions, a community of violent con-

37 *Ibid.*, 20.

38 Paul U. Kellogg, "Wage Earning Pittsburgh," *Pittsburgh Survey* (New York, 1914), 269.

39 *Register of Graduates*, 36-61.

40 Kellogg, 269.

41 *Ibid.*, 222.

42 Charles W. Dahlinger, "What's the Matter with Pittsburgh?," *Pittsburgh Legal Journal*, January 14, 1911, LIX, No. 2, 13.

trasts. Underemployment followed overtime; higher wages followed no wages at all. The city had contributed largely to making Pennsylvania the leading manufacturing state in the country by 1914. Pittsburgh was vulnerable to any failures in the economy of the country.

Pittsburgh was hardest hit by the panic of 1907; many who were overworked in 1907 were out of work in 1908. The rate of unemployed laborers in the United States in 1908 was 8.5 per cent. A financial depression in 1914 raised the unemployment rate in the United States to 9.7 per cent;<sup>43</sup> in Pittsburgh bread lines became a familiar scene in early 1915. Westinghouse Electric and Manufacturing Company, for instance, laid off five thousand of fourteen thousand workers in 1914.

Events on the national and world scene also affected Pittsburgh in times of prosperity. The impact of Allied war orders began to have its greatest influence on Pittsburgh in 1916. The war in Europe brought full employment and prosperity to the city; Pittsburgh worked as never before. Government contracts executed in Pittsburgh totaled \$215,405,000.<sup>44</sup> During this period, students graduating from Carnegie Tech reflected greater willingness to remain in school at the prospect of employment upon graduation; both the School of Industry and the School of Science and Technology produced a high of eighty-seven graduates in 1917. Of these, sixty-two per cent of those in Industries and fifty-two per cent of those in Science and Engineering took positions in Greater Pittsburgh.<sup>45</sup>

A rapid influx of immigrants at the turn of the century made the Pittsburgh job market even more insecure for graduates of Carnegie Tech. From 1880-1910, the foreign population of the city doubled; by 1910 one-fourth of Pittsburgh was foreign-born. The new immigrants, mostly from southeastern Europe, were docile, submissive, and willing to work long hours uncomplainingly. More and more employers strove to reduce factory work to simpler operations in order to incorporate the immigrants. Modern industry did not require a large percentage of all-around skilled workmen. The World War served to stem the tide of immigration after 1914. Only 141,132 European immigrants entered the United States in 1919, as compared to 1,218,480 in 1914.<sup>46</sup>

The working conditions in Pittsburgh industries were not attrac-

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43 *Historical Statistics of the United States, Colonial Times to 1957* (Washington, 1960), 58.

44 Stefan Lorant, *Pittsburgh: The Story of an American City* (Garden City, New York), 319.

45 *Register of Graduates*, 36-61; 87-125.

46 *Historical Statistics*, 58.

tive to college graduates with lofty aspirations. Increased mechanization made jobs physically more difficult simply because the worker had to keep up with the machine. The old folk song of "John Henry" was a fictional representation of historical fact. Pittsburgh steel workers, for instance, worked in twelve-hour shifts for seven days a week until 1914. The exchange of day and night forces, every two weeks, forced one group to work a twenty-four hour shift. Workmen reached their peak at thirty; a fifty-year-old worker was a rarity. Pittsburgh's industrial managers viewed things heartlessly: "If the necessary capital is not at hand, there are three ways of obtaining it: by borrowing it, stealing it, or sweating it out of the people."<sup>47</sup> The labor force of Pittsburgh was mishandled not maliciously, but through ignorance of economic reality.

The social and living conditions of Pittsburgh in the early twentieth century were not attractive for prospective workers. Pittsburghers always seemed too busy to give much attention to their surroundings. A smoky Pittsburgh was a healthy Pittsburgh, they thought. The city was haphazard about health, housing, and safety. Some community social leaders, such as William H. Matthews of Kingsley House (a Pittsburgh social agency providing a variety of cultural and social activities for people of all ages) in the Hill District of the city, called for improved living conditions for working people and for the removal of the causes of social misery. *The Pittsburgh Survey*, aimed at improving social conditions, was undertaken at the urgings of some of Pittsburgh's civic leaders. But reformers merely applied a stick to the hide of the industrial elephant and the beast would not be moved. More typical of the views of Pittsburgh's leaders were the words of Adolph Schmidt, president of the A. W. Mellon Educational and Charitable Trust: "Pittsburgh has its own particular genius. . . . It has its own directions."<sup>48</sup>

The well-to-do of Pittsburgh were content to enjoy their splendid surroundings while the masses dwelt in overcrowded tenements or in simple houses without sanitary conditions. They were undaunted by O. Henry's description of the city as "the low downdest hole in the surface of the earth."<sup>49</sup> They were unmoved by H. L. Mencken's scathing denunciation that "Here was wealth beyond computation, almost beyond imagination, and here were human inhabitants so

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<sup>47</sup> Lorant, 268.

<sup>48</sup> *Ibid.*, 357.

<sup>49</sup> *Ibid.*, 329.

abominable that they would have disgraced a race of alley cats.”<sup>50</sup> The affluent of Pittsburgh contended that more and greater wrongs against decency and morality had been committed in other communities than was ever the case in Pittsburgh. “No Pittsburgher should be guilty of assisting in spreading tales derogatory to the city.”<sup>51</sup> The élitist view was presented best by Samuel Harden Church of the Carnegie Institute Board of Trustees: “. . . There is much poverty here, but it is the poverty of hope which effort and opportunity will transform into affluence. . . .”<sup>52</sup>

The leadership of Pittsburgh, vitally unmindful of the city’s shortcomings, was insensitive to the potential of higher education in its own area. Support in Pittsburgh for its institutions of higher learning failed to materialize. Carnegie Tech did not develop as rapidly as the Massachusetts Institute of Technology. Pittsburgh was not supplied with the scientific and technical resources so necessary to the development of the area.

Comparatively ignored at home for its practical facets of education, Carnegie Tech won fame and honor for other reasons and in other places. Lauded by its supporters as an innovator in industrial education, the Pittsburgh school gained national recognition in ways unintended by its founders. Andrew Carnegie never intended to include a drama school or department within his Pittsburgh schools. The donor thought the theater wicked and ruled against the inclusion of a theater for the proposed Fine Arts Building in 1911. Carnegie turned down the architect’s plans for the building, saying, “It is not elevating, and a college campus is no place for a theatre.”<sup>53</sup> Major Henry Hornbostel, the architect who designed the Carnegie Tech buildings and dean of the School of Fine and Applied Arts, then returned the same drawings to Carnegie, but across the plan for the theater had written “Dramatic Laboratory.” Carnegie approved the plans, not knowing that he had endowed a 420-seat auditorium, a fully-equipped stage, classrooms, design studios, workshops, and a costume department.

Andrew Carnegie had unconsciously created the nation’s first college branch of Theater Arts. Carnegie Tech established a four-year baccalaureate course with a repertory theater, where students would

50 *Ibid.*, 327.

51 Dahlinger, 14.

52 Samuel Harden Church, *A Short History of Pittsburgh* (New York, 1908), 126.

53 “Shakespeare Fete Features 25 Years of Drama at Carnegie Tech,” *Pittsburgh Sun Telegraph*, April 23, 1939.

act, stage, and write. The repertory theater that had been created in Europe to divorce the drama from commercialism was now given impetus by the Carnegie Institute of Technology.

The first three graduates of the drama department in 1917 indicated the caliber of students that would bring the school nationwide recognition. Lucy Barton founded the Cleveland Playhouse. Frederic McConnell became an instructor of stage production at the University of California at Berkeley and assistant director of the prestigious Greek Theater there. Charles Stern became a well-known producer of plays in Pittsburgh. Many subsequent Carnegie graduates answered calls to Hollywood to aid in stagecraft during the era of silent films. The idea of a technological school spawning a drama school was "like a hardware store launching a millinery department,"<sup>54</sup> but Pittsburghers were quick to sing its praises.

More renown came when Carnegie Tech entered a new educational field in 1916 with the establishment of the Division of Applied Psychology. The Pittsburgh *Dispatch* of September 25, 1916, hailed it as "one of the most unique enterprises in America."<sup>55</sup> Dr. Walter Dill Scott, professor of psychology at Northwestern University and later president there, became the director of the new undertaking. Scott was considered the foremost authority in the United States on psychology in its application to business, and his appointment to a chair of Applied Psychology was the first such designation in American colleges. The new school sought to apply psychology to business by studying the problems facing commercial and manufacturing enterprises and confronting the problem of fundamental differences in individuals. The goal was to place the right man in the right job.

The use of psychological tests to prepare rating scales was given further impetus upon the American entrance into World War I. The United States Army sought new methods of classifying men in the army according to ability with the hope of eliminating the unfit, and Carnegie Tech was the only school involved in this kind of work in civilian life. By August of 1917, Carnegie rating scales became the official system of the United States Government for promoting, demoting, and transferring the 150,000 officers in the United States Army. General Pershing felt that every officer should be rated before leaving for France and ordered the preparation of psychological tests to be used in classifying two million enlisted men.

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<sup>54</sup> *Ibid.*

<sup>55</sup> "Unique Department to Aid Business Will Be Conducted at Tech," *Pittsburgh Dispatch*, September 25, 1916.

The success of early graduates from the Division of Applied Psychology attests to the prestige of the pioneer venture. The first graduate, Edward Robinson, became instructor in psychology at Yale, and later became chairman of the department there. Of the fifteen graduates in the Class of 1919, eight became supervisors of employee relationships and two undertook further research at universities. Mary Dredge, who became head of the training division at Pittsburgh's Kaufmann's Department Store, was the only one of the first sixteen graduates who located in the Pittsburgh area.<sup>56</sup> New undertakings, like old ones, gained most recognition elsewhere.

Carnegie Tech's contribution to the war effort in World War I enhanced its reputation nationally. The Federal government quickly accepted the resolution of the Carnegie trustees which offered to place the equipment and services of the school at the disposal of the United States Government. On February 2, 1918, Director Hamerschlag went to Washington to assume the role of Director of Industrial Research. The 2nd Battalion of the 15th Engineers Brigade, composed exclusively of Carnegie alumni, undergraduates, and former students, went to France to build highways, supply depots, and powerhouses; in addition, they rebuilt the Verdun-Sedan Railway. The War Department sent more than eight thousand enlisted men to the Pittsburgh campus for over thirty courses, ranging from inspection of steel manufacture in munitions plants to bandmasters. In January 1919, Carnegie Tech began vocational rehabilitation for discharged soldiers in order to return them to civilian life as independent and self-supporting individuals. Over ten thousand men were given instruction at Carnegie as a result of the war, a very significant contribution to the American effort.

With the war concluded, the change to a peacetime status found many significant voices calling for new directions in American education. Much criticism focused on practical and industrial education. Robert J. Aley, president of the National Education Association, urged that trade education be "delayed long enough to reduce the misfits to a minimum and to prevent the formation of a caste system based upon trade or industry."<sup>57</sup> Paul A. Douglas, in a perceptive criticism, pointed out that craft-oriented education had been left behind by the onrush of technological advance. Because of the specialization of labor, the old handicraft ideal of giving each workman all-around

<sup>56</sup> *Register of Graduates*, 86.

<sup>57</sup> Robert J. Aley, "Cooperation in Education," *School and Society*, July 14, 1917, VI, No. 133, 34.

technical skill was impossible. Looking to the future, Douglas suggested that "It is as important for society to have good citizens as it is for industry to have efficient workmen. It is as important for an individual to know how to live as it is for him to know how to make a living."<sup>58</sup>

Officials within the Carnegie community questioned the directions of education at Carnegie Tech. Some of those who called for curriculum revision had previously been staunch proponents of technical education. *The Carnegie Alumnus* of April 1917 had praised Dr. John H. Leete, Dean of the School of Science and Engineering, for "giving the school the reputation of turning out good, technically trained men capable of doing effectively the tasks for which they had been trained."<sup>59</sup> Yet in June of 1919, as Director of the Carnegie Library, Dr. Leete raised questions about the education at Carnegie Tech: "Ought not education to produce the cultivated man and not merely the pattern maker? . . . Is direct training for a job the primary purpose of an education?"<sup>60</sup>

Pressures to modify the curriculum away from the specialization the founder had in mind resulted in the first major change in organization since the inception of the Carnegie Technical Schools. In 1919, the establishment of a fifth faculty, the Division of General Studies, signified that practical educational objectives had been too consistently in view. The new division sought to stimulate the interest of the technical student in non-technical subjects by providing less specialization and more liberalization. In order to understand the world and the responsibilities of citizenship, the student would have to acquire a broader outlook in college. The addition of a fifth division coincided with a complete revamping of the courses in the School of Industries.

Thus, there was a clear decrease in the charitable, missionary fervor for educating the underprivileged children of Pittsburgh and making them economically independent. Even before Andrew Carnegie's death in 1919, the school had transcended his interest and those of his chief administrators at the school. Dr. John Leete had gone to the Carnegie Library. Dean Clifford Connelly of the School of Industries, praised as the man who "has fostered from their infancy the original plans of Mr. Andrew Carnegie in founding the Institute,"<sup>61</sup> left in May of 1919. President Hamerschlag, although he did not re-

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58 Douglas, 338.

59 *Alumnus*, III, No. 3, 5.

60 *Alumnus*, IV, No. 1, 23-24.

61 *Ibid.*, 4.

sign until 1922, accepted change reluctantly in his final years, complaining he was an engineer, not an educator.

All Andrew Carnegie had contemplated was a school for good mechanics, primarily, if not exclusively, for the young people of Pittsburgh. In the heart of the industrial center of America, the city seemed to be the ideal place for careers in technology. However, Carnegie Tech never achieved its expected impact on Pittsburgh and by 1920 over one-half of the student body came from other sections of the United States. Andrew Carnegie had wished to do "everything for Pittsburgh," but *The Carnegie Alumnus* of May 1919 noted ironically of Carnegie Tech that ". . . The farther you travel from Pittsburgh, the greater are her fame and honor."<sup>62</sup>

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<sup>62</sup> *Ibid.*, 5.