William Barton Rogers and the Idea of MIT

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A lmost as soon as he’d finished a course of studies at the College of William and Mary, young William Barton Rogers packed his belongings and left for Maryland. Accompanied by his brother, Henry Darwin Rogers, William headed for the small town of Windsor located near Baltimore. William had only a vague idea of what lay ahead, but between the time he arrived in 1825 and his return to Virginia three years later, his life path had become much more clearly defined.¹

The first thing Rogers did in Windsor was start a small Latin grammar school (the Victorian-era equivalent of a high school), but his interests quickly turned to higher learning. During his years in Virginia, he assumed there’d be plenty of opportunities for educators in Maryland. He was pretty sure that the classical and scientific education he had received at William and Mary would open doors in and around Baltimore. It turns out he was mistaken. “Teaching,” he discovered, was “much less profitable in Maryland than in Virginia.” He struggled along with his brother until he found an opening at an institution in Baltimore. Leaving his brother in charge of the Latin grammar school, William became an instructor at the Maryland Institute. Through its popular lectures and public exhibits, the small, recently opened institute specialized in “scientific information connected with the mechanic arts, among the manufacturers, mechanics and artizans of the city and state.” There William began to show a strong interest in the organization of science programs and their function in the higher learning landscape. The appointment stimulated his imagination about the potential of such institutions.²

The instructorship in Baltimore also directed his attention squarely onto science. Rogers taught in the areas of mathematics, physics, chemistry, and astronomy, without any requirements to teach the classical languages. Even at the school he founded in Windsor, the classics stood at the center of his teaching regimen. But at the institute he felt free to prepare lectures in the sciences and to develop research interests in the fields he taught.³

As his time and interests shifted toward higher learning and science instruction, Rogers began to take seriously the role of laboratory instruments. He became con-
vinced that “apparatus” played an important role in the advancement of science. It offered scientists new ways to examine nature and to advance their understanding of natural phenomena. But these tools were expensive, and Rogers saw scarcity of equipment as an obstacle to the advancement of knowledge and instruction. “The want of apparatus,” he noticed, “has compelled me entirely to omit several subjects in my department.” As he faced large audiences of science enthusiasts at the Maryland Institute, the newly installed, twenty-three-year-old instructor became absorbed with how best to present scientific knowledge with the available instruments. When he hit on the right one for the job, he could hardly contain his enthusiasm.4 “I am at present engaged with the subject of astronomy,” he sunnily reported back to family in Virginia, “and have already delivered four lectures upon it, in which I have been much assisted by an admirable [device] which has been loaned to me. It would be difficult to give you an idea of the beauty of this instrument. It was constructed by an ingenious young mechanic in this place a few years ago, and . . . is still of great value in illustrating many important points in astronomy. . . . The instrument affords a clear explanation of the phenomena.”

During this period in Maryland, Rogers discovered the areas of interest that cleared a path toward the work of a lifetime; his interests in higher learning, science, and the laboratory remained with him through fundamental transformations in the nation. The United States, by then, was struggling to shed its Old World traditions of college life centered on the classics, traditions with limited opportunities in the way of science. Scientific knowledge had far outstripped the rudimentary offerings at most American colleges and universities, leaving instruction in this area to non-traditional institutions. Science itself, still young and groping in the New World, awaited a group of scholars who could devote themselves to the pressing questions of the day. Amateurs and aspiring professionals alike engaged questions about the parameters of science and the need to reconfigure its fields of inquiry. The nation had developed ever-greater needs and demands for innovations in instrumentation, moreover, whether for the laboratory or the textile mill. Nevertheless, the relationships between the laboratory and science—particularly with regard to instruction or to the advancement of knowledge—interested but few in the academic world. Although Rogers considered his future uncertain while in Maryland, he had found three main pursuits. In these early years the teaching experience turned into a passion for inquiry and the profession as well as an insatiable appetite for ideas about institutes of technology.6

First and foremost among the influences that shaped Rogers’s life pursuits was his father, Patrick Kerr Rogers. Born in Ireland in the year the American Revolu-
tion began, Patrick was first schooled under his own father, then in a local schoolhouse, and later by private tutors. Shortly after turning twenty, Patrick participated in a rebellion against British rule and published antigovernment articles in a Dublin newspaper. Known for his controversial political activities, he fled Ireland for fear of persecution and sailed to America. In 1798 he arrived in Philadelphia and soon after followed an interest in science to a tutorship at the University of Pennsylvania.7

Few cities in the New World could’ve provided as many opportunities as Philadelphia for aspiring scientists of Patrick’s generation. The city of fifty thousand citizens still housed the nation’s capital. Prominent political and intellectual leaders visited Philadelphia and continued to do so after America’s governing center moved to the District of Columbia. One mainstay of the old site was the American Philosophical Society. By the time Patrick had arrived from Ireland, the society had a meeting hall, a collection of natural specimens, a host of apparatuses such as telescopes and other equipment, and a depository for maps, drawings, and models. From its equipment to its leadership the organization reflected a national fervor for the practical over the theoretical. “Knowledge is of little use,” noted the first publication from the society, “when confined to mere speculation. But when speculative truths are reduced to practice . . . knowledge then becomes really useful.” Most important to Patrick, however, was the newly organized University of Pennsylvania. In the late eighteenth century the state legislature brought the institution into being through a merger that combined the College of Philadelphia and its medical school with the University of Pennsylvania. The most notable beneficiary of the merger was the medical school, which soared in prestige and attracted to its campus students from Europe and a renowned medical faculty.8

Patrick worked with colorful, innovative professors at the University of Pennsylvania who left their mark on his scientific and educational thought. He attended the lectures of James Woodhouse, for example, a chemist and physician who founded one of the first professional organizations for chemistry, the Chemical Society of Philadelphia. For seventeen years Woodhouse held the presidency of the association. During that time he also became well-known for original laboratory experiments in the areas of medicine, commerce, and industry. Despite his sometimes outlandish claims (that “by chemical agency alone, he could produce a human being,” for example), these experiments promoted interest in plant chemistry, chemical analysis, and the use of the laboratory methods for chemical instruction. One observer recalled that “his laboratory was in sundry places perpetually glowing with blazing charcoal, and red-hot furnaces, crucibles, and gun-barrels, and often bathed in every portion of it with the steam of boiling water.” His use of the laboratory attracted the
attention of many American scientists; Patrick, and his future family, took the idea perhaps more intently than most.9

Botanist and geologist Benjamin Smith Barton also had an impact on Patrick’s career at Pennsylvania. “If, in the course of my life,” he wrote to his professor, “I may enjoy any happiness from my attachment to the sciences . . . it must be acknowledged . . . the result of your example, instruction and benignity.” Barton’s most recognized work, *Collections for an Essay Toward a Materia Medica of the United States* (1798), appeared the same year that Patrick arrived in Philadelphia from Ireland. The study compiled a list and description of American medicinal plants based on original observations and inquiry. While he studied under Barton, the professor also published *Fragments of the Natural History of Pennsylvania* (1799), a work that inspired many of his students to pursue the newly forming field of geological studies. Patrick numbered among those who took an interest in the field (an interest he would pass down to his sons). Pennsylvania had long recognized Barton’s expertise in the discipline and impact on his students. To ensure that he’d stay at the institution, officials established the first chair of natural history in America.10

More influential on Patrick than either Woodhouse or Barton was the eminent Benjamin Rush. In the mid-eighteenth century Rush held one of the first chairs of chemistry in America, at the College of Philadelphia. Although he achieved distinction in both medicine and chemistry, his interests extended beyond the two fields. Rush established a reputation as a social reformer by publishing articles on the slave system and organizing the Pennsylvania Society for Promoting the Abolition of Slavery. In addition, his thoughts on education reform figured most prominently in the lives of the Rogers family. In a post—Revolutionary War article in Philadelphia’s *Federal Gazette*, Rush outlined his plan for a federal university. Unique to the proposal, he envisioned curricular and pedagogical changes to the dominant classical course of study. “Let those branches of literature only be taught,” he argued, “which are calculated to prepare our youth for civil and public life. These branches should be taught by means of lectures, and . . . arts and sciences should be the subject of them.” Responding to traditional collegiate models that emphasized Latin and Greek taught by way of the recitation, Rush advocated the establishment of an institution that would place practical and scientific studies taught with alternative methods of instruction at the center of the curriculum.11

While studying at the University of Pennsylvania, Patrick met Hannah Blythe, also from Ireland. Hannah came from a free-spirited family that was involved in antigovernment activities in Ireland, providing a strong commonality between the two immigrants. Her father had once held secret ownership of the *Londonderry Journal*, known for its controversial articles. But by the late eighteenth century both her
parents had died, and, along with her sisters, Hannah left for the United States. Arriving in Philadelphia, the Blythe sisters were received by a cousin who had fled years earlier. Soon after Hannah settled in America, she became engaged to Patrick. In keeping with their heritage, they married in Philadelphia’s Presbyterian church in 1801. The following year the couple had their first child, James Blythe Rogers.\(^\text{12}\)

Having started a family and graduated from the university in May 1802, Patrick formed a medical practice in Philadelphia. Although he’d found his professors inspiring and was drawn toward academic life, he saw medicine as the only viable career. Around the time he received his degree, few undergraduate programs kept faculty positions in science as stable as Harvard’s Hollis chair or Princeton’s chemistry professorship. In fact, most colleges showed only mild interest in nonclassical studies. Practicing physicians, meanwhile, enjoyed relative stability and a newly acquired sense of professionalization. Although only three American institutions—Harvard, the University of Pennsylvania, and King’s College (later Columbia)—had medical schools at the turn of the nineteenth century, twenty-six new schools opened over the following four decades. This expansion in medical education contributed to a distinction between those in the mainstream and those without formal education in the field. The medical degree offered Patrick entry into the world of mainstream medical practice, which at the time still included such primitive treatments as bloodletting and purgative methods for even mild illnesses. Entry, however, didn’t necessarily secure a livelihood. Regardless of educational background or treatments employed, Patrick, like most of his peers, depended on establishing a reputation among clients for a successful career. He had firsthand experience with the challenges of the occupation, especially after a brief trip to Ireland. “In the year of 1803,” he reflected, “I was engaged in full business in Philadelphia as a physician, and the products of my practice were more than equal to my current expenses.” The same year, unfortunately, his debts ballooned after he tended to his father’s funeral in Ireland. When he returned to his practice in Philadelphia “to make a second beginning in the same place,” he recalled, “I was never able to procure a share of business equal to the expenses of my family, however moderated.” Whatever reputation he had cultivated in the community perished during his brief absence.\(^\text{13}\)

The practice dissolved soon after Patrick returned from Europe, and he looked to other opportunities to recuperate his losses. One unusual venture consisted of an attempt to start a medical library for the city of Philadelphia. After investing a substantial portion of the family’s savings, the library became a short-lived experiment and ultimately failed. During this trying period in the family’s history, William Barton Rogers was born, on December 7, 1804, followed by a third son, Henry Darwin Rogers, four years later. At that time the Rogers family sank deeper into debt, and
Patrick’s creditors recommended that he do what many other Americans had begun to do: pull up stakes and move to another city in search of better opportunities. The credit lenders suggested New York and Maryland, and the troubled physician settled on the latter to give medicine another try.

By 1812 the Rogers family had moved to Baltimore and opened an apothecary shop. Their prospects increased moderately as Patrick added a series of successful public lectures to his schedule. To a large extent it was his lecturing abilities that won him membership in the Hibernian and Maryland Medico-Chirurgical societies. While his professional opportunities increased, so, too, did the size of his family with the birth of Robert Rogers, the fourth and final son, a year after their move to Baltimore. Six years later Patrick, still seeking greater economic stability, applied for a professorship at the newly organizing University of Virginia. In a letter of application for the appointment he commented that during his years in Philadelphia he had “delivered several courses of lectures on chemistry and natural philosophy in Philadelphia, some of which were attended . . . by the director of the mint, Robert Patterson, and several of the professors of the University of Pennsylvania.” Patrick hoped the opening at the University of Virginia would allow him to pursue teaching and research in natural philosophy and mathematics. Certainly, the educational ideals of the new university, resembling the science-promoting notions of his former mentor, Benjamin Rush, must have interested him. Yet his strong appeals to the university yielded nothing except a letter of rejection from the founder, Thomas Jefferson. In the same year, however, Patrick received an offer to join the faculty at the College of William and Mary in Williamsburg, Virginia. With little hesitation the Rogers family collected their possessions and headed south.

Not long after they arrived in Williamsburg in 1819, the family was already considering returning to Baltimore. Patrick valued the professorship of chemistry and natural philosophy at the College of William and Mary, yet, as he wrote to his colleagues in Maryland, life in the small college town left much to be desired. Patrick came into conflict with the institution’s policies and had difficulty with what he perceived as a stale intellectual climate. The two eldest of Patrick’s four sons, James and William, enrolled and also found the transition difficult. James decided to leave after two years, returning to Baltimore to complete a medical education. William, however, stayed on for six trying years before following a similar path. The immediate difficulties the Rogers family faced came from William and Mary itself, but the problems reflected a deeper, more pervasive obstacle to higher learning in the rural South: isolation.

The contrasts between urban and rural life in early-nineteenth-century Baltimore
and Williamsburg provide an explanation for the challenges the Rogerses experienced. By 1819 Baltimore, with its sixty thousand residents, had developed into a center of international commerce. The European wheat trade favored the centrally located city and its ports, as it had since the mid-eighteenth century. With the rise in merchant trading came a major shipbuilding industry, an artisan community, and a proliferation of shops, banks, and insurance companies. As an emerging center of commerce, Baltimore began to compete with nearby Philadelphia. Not to be outdone in either education or science, the state of Maryland granted the request of three Baltimore physicians to establish the College of Medicine in Maryland in 1807, an institution that went on to “promote medical knowledge.” Five years after its founding, the college added a Faculties of Divinity, Law, Arts and Science and changed its name to the University of Maryland. The emergence of the new institution mirrored the expansion occurring in Maryland’s largest city, growth that had attracted nearly a third of the state’s population.16

Williamsburg, on the other hand, had a distinguished past but an uncertain future. The city of two thousand inhabitants had been home to Virginia’s Assembly, giving rise to the legislative careers of George Washington and James Madison. Williamsburg’s oldest establishment, the College of William and Mary, derived its name from the monarchs of England who granted the charter in 1693. After Harvard College, William and Mary became the second institution of higher education founded in the colonies. The Virginia college originally proposed to open “a certain Place of universal Study, a perpetual College of Divinity, Philosophy, Languages, and other good Arts and Sciences.” It began by providing a seminary for the Church of England in the colonies and offering a general education to the social elite of Virginia. Among its alumni William and Mary could claim Thomas Jefferson, James Monroe, and John Tyler. Before challenging the college with a rival institution, Jefferson declared, “I know of no other place in the world, while the present professors remain, where I would so soon place a son.” The professors ultimately left, however, and problems facing the once lively political center of Virginia increased when the state’s capital moved to Richmond. Without a significant base for commercial or political life, the Rogers family believed the small college town had simply fallen off the map.17

The Old South had no special monopoly on the challenges of rural life. Certainly, communities in other regions, especially in the Midwest and further westward, were equally removed from the activity in the Northeast. Yet intellectuals across the South were particularly bitter about their sense of exile. Literary figures such as antebellum novelist William Gilmore Simms grew despondent over what he viewed as a drab intellectual life in the region. “I have never known what was cordial sympathy in any
of my pursuits among men,” bemoaned Simms in South Carolina. He longed for the fellowship and support of others with similar concerns. In a self-described “Sacred Circle” Simms finally found a small community to console him. As a group, numbering five social critics in all, they deplored the lack of cultured pursuits in the South. One member of the circle, politician James Henry Hammond, even while governor of South Carolina, considered himself intellectually “as solitary . . . as if I were in the great Sahara.” Edmund Ruffin, another member, spent most of his career advocating scientific reforms in southern agriculture but had little impact on the region. He believed that “the great evils which serve to prevent agriculture from being prosperous in Virginia may be summed up in a single word, ignorance.” Political economist George Frederick Holmes, who floated in and out of academic positions across the South, looked for consolation in the circle as well. None of the institutions—including William and Mary, the University of Mississippi, and the University of Virginia—had provided him with a satisfying community of scholars, leaving him a veritable “alien on a desert shore.” Lawyer and novelist Nathaniel Beverly Tucker, the final member, also taught at William and Mary with little intellectual companionship. He viewed the condition in the region with great scorn, especially when he commented that even Robinson Crusoe had been “hardly more completely isolated than I.”

At William and Mary isolation made it difficult for the institution to attract and retain scholars like Patrick Rogers. In natural philosophy the two professors before him both left Virginia for more stimulating climes. Thomas P. Jones held the professorship until 1817, before moving on to a career at the Franklin Institute in Pennsylvania. That year the contentious president of the college charged that Jones’s lectures lacked a “scientific” quality. The attacks from the president, coupled with the area’s want of intellectual activity, Jones complained, kept Williamsburg in a “humiliating condition.” Well-known chemist Robert Hare replaced Jones, but for only a year. By 1818 Hare accepted a professorship at the University of Pennsylvania and went on to establish a prominent career in chemistry at the Medical School. For the following session William and Mary elected Patrick to fill the vacant chair. He missed the kind of activities that he left behind in Baltimore—the circuit of public lectures, the Medico-Chirurgical Society meetings. Ruminating over the character of life at the college, one of his colleagues described the area as a “sad place of solitude and exile.”

William Barton Rogers first experienced such intellectual isolation as a student at William and Mary. As with his father and the Sacred Circle, he thought of himself as somewhat disconnected from the life of his peers. Unlike the less-prepared students he would come to know, William had studied for college under his father,
who provided a home education for his sons. Patrick had good reason for doing so. The geographic distribution of people in the South, widely scattered across large regions, made it nearly impossible to organize statewide school systems. Local public systems rarely emerged outside of major southern cities, such as Nashville and New Orleans before the Civil War. Instead, private, sometimes fly-by-night institutions appeared here and there to meet specific needs as they cropped up. William later recalled the details of his early schooling, noting that “with the exception of a short period . . . we never spent any of our afternoons in schools.” Happy with this alternative to the “drudgery” his playmates experienced, William recognized that he and his brothers had gained a “thoroughness of our knowledge on all the subjects which we studied.”

Few of his colleagues, however, had been given similar opportunities, and for the most part were unprepared for academic life. Given the limited options available for preparatory schooling at the time, colleges and universities received students ready for high school rather than higher education. Because tightening requirements would prove fatal to most small institutions, undergraduates across the southern states received a course of study that matched their level of preparedness. Rogers’s home education colored his observations of Virginian college life, especially the life of his peers. Toward the end of his first term at William and Mary, he mentioned to one of his brothers that “with the exception of about eight, there was perhaps never an assemblage of young men so totally destitute of genius and so miserably deficient in understanding. Yesterday . . . Dr. Smith inquired of a student what was the nature of material substance, the answer was ‘one which affects our senses and exerts reason!’ Father asked the same person for a definition of a solid; after much hesitation, a good deal of muttering, and abundance of broken sentences, the gentleman answered with great philosophical gravity that it was ‘A-a-a body which was a solid.’” Rogers was ambitious and competitive and, at least in natural philosophy, ahead of his peers. But his competitive nature spilled over into other subjects as well. He developed a strong secondary interest in styles of rhetoric and oratory through recitations in the classical languages. By the age of seventeen the community selected him to give a “Virginiad” oration commemorating the founding of Jamestown, Virginia. The Rogers family took pleasure in the attention they received when state newspapers published young William’s speech.

While the lack of a scholarly spirit on campus bore down on him, Rogers also grew weary of cultural isolation. For the period he might have been asking much of the little town. In the antebellum South only two centers of commerce, Charleston and New Orleans, held promise for cultural activity. Coastal access to the mercantile economy had not only provided the cities with opportunities for the importa-
tion and exportation of goods but also of ideas. Charleston could boast a Library Society and a Literary and Philosophical Society. The former became the famed Charleston Museum, one of the oldest repositories of natural history for the region. The latter promoted an interest in “every department of the arts and sciences.” New Orleans developed similar cultural organizations during the period, with its Lyceum of Natural History and Society of Natural History and Sciences. Although literary societies and museums began to appear in the two cities, the rest of the South experienced cultural isolation. As the author William Gilmore Simms declared, “The South don’t care a d——m for literature or art.” Williamsburg, apparently, was no exception.\textsuperscript{23}

Rogers lamented the lack of academic cultural activity and observed the “foolish” character of life on the campus. Taking himself and his work perhaps too seriously, he described the behavior of the students at William and Mary as carnivalesque in their obsession with “feasting, dancing, and music.” “Students,” he stated, “are more occupied in anticipation of the pleasure that one evening will afford them than in preparing themselves for the appropriate chair of examination.” While he linked cultural isolation to problems with the extracurriculum, he associated the same with gaps in the curriculum. As a student, Rogers faced several challenges while assisting his father collect materials for lectures and science demonstrations. Few of the materials and equipment they needed could be purchased locally. Rogers wrote to his brother James in Baltimore: “I wish you could learn whether Doctor [Elisha] De Butts has yet prepared Iodine or potassium . . . father is unable to present to class for want of [it] . . . and the apparently necessary for preparing the latter cannot be obtained anywhere in Virginia.” Sending away for virtually every chemical and every apparatus, their frustrations mounted.\textsuperscript{24}

Rogers’s father looked for ways to enhance the experiences of his sons and counter the limited intellectual and cultural resources of Williamsburg. For William this meant being allowed to participate in research projects. Upon completing a mathematics text, for example, Patrick wrote to Thomas Jefferson that some of the problems and their explanation “are by my second son who is now in his 20th year and has a very extraordinary passion for physico-mathematical sciences.” In the same letter to Jefferson he mentioned, “I intended to have it [the text] sent to you last year but was induced to defer doing so from the expectation that, I should before now, have found convenient to get the diagrams engraved: the state of this institution [William and Mary], however, does not encourage me to incur this expense.” Indeed, he feared that the college would hardly be able to compete with Jefferson’s proposed University of Virginia. “There is something in the organization of William and Mary,” Patrick told the former president, “which independently of its location
or other permanent disadvantages, must forever prevent it from being prosperous or successful. . . . I am inclined to think that when [the university] goes into operation we shall scarcely have occasion to open the doors of the old College. Even at present there is no reputation to be acquired here, and no encouragement to activity or zeal.”

Any bright expectations the Rogerses might have had for the College of William and Mary continued to dim. External signs of the institution’s decline began to appear and certainly didn’t help morale. Visitors passing through Williamsburg would comment on the sad condition of the campus. One traveler described the scene as “the ruins of William and Mary College.” “It has been very much neglected,” continued the description, “and will soon go quite to ruin. The steps are mostly out of the place. Some of the windows are entirely broken out and most or all of them more or less broken, some not having more than three panes of glass in them. The cellar is used for a barn, and the building has more the appearance of a gaol in ruins than the remains of a college.” Students wanted to leave the discouraging scene as much as the faculty did. Enrollment fell from an average of thirty-four to a total of six students in 1824. That year President John Augustine Smith, supported by two faculty members, proposed to move the last vestiges of the institution to Richmond in a final effort to survive. The idea of reviving the college in a more prosperous economic and social environment was repeated often by advocates for the move. They hoped that enrollments would rise in a more densely populated city. After gaining approval from the Board of Visitors, Smith sought funds from the state legislature to finance the effort. A steady stream of appeals from William and Mary, however, was met with a yawn. Legislators had little interest in funding the transfer, leaving the institution in Williamsburg as isolated as ever.

To Rogers the college’s future looked bleak, and the following year he left for Baltimore with his brother Henry. The two joined their oldest brother, James, leaving the youngest behind in Williamsburg. Despite William and Mary’s problems, their studies under their father had prepared them for scientific lives; individually and through collaborations, they embarked on careers in science that gave rise to the fraternal circle known as the four “Brothers Rogers.” They greatly influenced each other’s social, scientific, and educational views, and their personal and professional life histories help shed light on the development of William’s character and persona.

James Blythe Rogers had the most turbulent entry into the scientific community. After a brief stint at William and Mary, he began medical studies at the University of Maryland, where he received an M.D. degree in 1822. His first attempt at establishing a medical practice with a colleague was a dismal failure and prompted him
to accept a position as a superintendent of a large chemical factory. Unsatisfied with factory life, he sought other means of employment, including tutoring and intermittent lectureships at the Maryland Institute. Incessant pleas to his father for support reveal the tenuousness of his teaching arrangements. At one point James entertained the idea of providing medical assistance to a colony of freed slaves at “Cape Mesurado” on the west coast of Africa. Although the opportunity never materialized, he ultimately journeyed to another frontier, Ohio. For almost five years he taught in the medical department at Cincinnati College as professor of chemistry, followed by positions at the Philadelphia Medical College, the Franklin Institute, and finally the University of Pennsylvania until his death in 1852. His professional and scholarly accomplishments included assisting in the organization of the American Medical Association, memberships in the American Philosophical Society and the Academy of Natural Science of Philadelphia, and publications in chemistry. 28

Henry Darwin Rogers, the third son, also attended William and Mary for his undergraduate studies until 1825. He spent the next several years in Maryland employed in various commercial and educational occupations until he was offered a teaching position at Dickinson College in Carlisle, Pennsylvania. After only a year, however, the trustees dismissed Henry for his reform-minded views on science and its role in traditional education. In a controversial article he argued against the dominance of the classical curriculum and advocated alternative methods of instruction. The arguments had much in common with the views of his father’s professors at Pennsylvania. After leaving Dickinson, his interest in reform continued unabated. “The true struggle for human liberty,” Henry remarked, “is in the field of education, by the pen and through the press, it is in the hall of knowledge and on the leaf of science.” Although he was active in promoting such beliefs, his most significant contributions were in geology. His dismissal from Dickinson allowed him time to conduct scientific research in Europe. While there, Henry formed lasting personal and professional relationships with some leading British geologists. His reputation as a natural historian swelled when he returned to the United States after a few years, and he was commissioned to lead the state surveys of New Jersey and Pennsylvania. The survey work and other research endeavors yielded numerous publications and launched his career as one of the first professional geologists in America. He subsequently returned to Europe and accepted the Regis Professorship at the University of Glasgow in 1857, a position he held until his death nine years later. 29

The youngest brother, Robert Empie Rogers, also enrolled at the College of William and Mary. There he started a lifelong interest in chemistry, which continued at the University of Pennsylvania. Robert graduated with an M.D. degree in 1837 but maintained no serious interest in becoming a practitioner. Instead, he accepted
a professorship at the University of Virginia, where he kept up his chemical research. When his brother James died, leaving open the chemistry position at the University of Pennsylvania, Robert was called to fill the vacancy. He accepted and later spent twenty-five years as dean of the faculty. After his tenure at Pennsylvania, he left for a professorship in chemistry and toxicology at the Jefferson Medical College in Philadelphia, where he stayed until 1884, when he became ill and died. Although less prominent than his brothers, Robert had an impact on the development of scientific education, conducting numerous chemical experiments and advocating the use of the laboratory for instruction in higher education.30

William Barton Rogers, the second son, interacted frequently with his brothers in an ongoing dialogue that contributed to the shaping of his educational and scientific thought. His wife, Emma Savage, would later recall that “the lives of the three brothers... occupied so large a share of his thought and affection.” Much of the correspondence between the family members encouraged one another to stay current with advances in science and collegiate reforms. Early in William’s academic career, for example, James made sure his younger brothers made the most of their scientific studies. He encouraged William to develop a critical approach to science that went against the rote memorization methods of the traditional recitation: “I now sit down to write you a short letter, in which you may not calculate on anything new, except a new and in my opinion a rather singular opinion advanced by Dr. [Elisha] De Butts, which he delivered this evening, one which I think is wholly unsupported by any evidence.” When William ended his studies, he took this critical approach and his research interests to Baltimore.31

As mentioned earlier, William, with Henry’s assistance, envisioned opening a Latin grammar school in the town of Windsor. Their efforts organizing, designing, and managing an educational institution paid off in the fall of 1826, when the school opened. They had modest hopes; to them the school was a brief detour along a path toward a career, one that would “in a few years” allow them “to obtain a profession and begin the practice of it.” They soon realized that it wouldn’t work out that way. The modest income could not “expect to make much more than a support in our present condition.” “The profits of the school,” Rogers complained to his father, “would be sufficient to satisfy one of us, as it would enable him to lay up something for the future.” William and Henry couldn’t both stay at the small institution and also save for further studies. William, therefore, began looking for work in Baltimore and found a lectureship at the Maryland Institute that suited him.32

The Maryland Institute, founded in 1825, was modeled after Philadelphia’s Franklin Institute. Both of them sponsored public lectures and demonstrations in the sciences. Rogers started his lectureship at Maryland two years after its founding.
and there learned of profound changes occurring in American society and the changing climate of educational discourse concerning science. In his introductory address at the institute Rogers reveled in “the usefulness of popular courses of scientific instruction” and noted that similar courses had become more common in America by this time. “Of late years,” he stated, “the public mind, both in this country and abroad, has been much interested in the subject. In many places institutions calculated to render useful science attainable by the mass of society have been established; and such is the growing impression of their value that their number continues yearly to increase.” Increasing attendance at the institute’s lectures gave him further reason to believe that there was indeed a growing interest in American science. Although he taught with few instruments and even fewer opportunities for laboratory sessions, he relied mostly on his voice, the blackboard, and a few demonstrations to attract an audience. His enthusiasm for science and practical innovations, making use of the available “apparatus” and developing his public speaking abilities, opened doors to promotion for him at the institute.33

His reappointment from temporary lecturer to professor in Baltimore ultimately depended on a single condition. If the Maryland Institute would purchase the resigning professor’s equipment, Rogers would assume the chair. Dealings between the institution and the departing professor broke down, however, and Rogers sulked to his father: “Had they purchased it, I would certainly have been appointed. As it is, I presume no appointment will be made.” In the end he never received the promotion at the Maryland Institute, but he gained valuable experience in the conduct and organization of an institute of science and practical studies.34

The instructorship lasted only one session, but the institute trustees provided William Rogers with another opportunity. They asked him to develop a plan for a feeder school that would be directly affiliated with the institute. Colleges and universities of the antebellum period often established classical schools and academies to prepare students for higher learning. But the Maryland Institute wanted something different: a school with a greater utilitarian aim than most preparatory schools of the period. In April 1828 Henry informed his father that “William is at present engaged in maturing a scheme for the regulation of the school, to be offered to a committee of managers for their approval.” The following day Rogers submitted his fully formed plan for the new school.35

His plan had five principal elements. First, he outlined the comparatively low cost of tuition and the items covered and not covered by the price of instruction. Second, he established a set of minimum entrance requirements. All new students needed to show proficiency in spelling, reading, writing, and “arithmetic computations at least as far as the rule of three.” The total number of students for the school,
as determined by a third point in his plan, could not exceed fifty. Rogers did not mention the number of staff members in his statement, but he had at least himself and his brother Henry in mind. Fourth, the plan ruled out any offerings in the ancient languages. “Classical studies,” he made clear, “are not within the scope of the school.” And the fifth and most significant element described the mission of the school. The new institution’s purpose was to provide students formal preparation for “mechanical and mercantile employments.” To accomplish this goal, the curriculum focused on mathematics, geography, surveying, navigation, and English composition. Within a month after Rogers submitted the proposal, the Maryland Institute prepared to open the school with Rogers in charge of its administration and teaching, providing the twenty-three-year-old with his second experience establishing and leading an educational institution. His early exposure to planning, teaching, and administration greatly advanced his interest in the promotion of practical education.36

During the first week of May 1828, shortly before the school opened, William and Henry went to Philadelphia to examine a feeder school affiliated with the Franklin Institute. William believed the trip would give him more ideas to consider. What he discovered at the school probably surprised him. He knew that the Franklin Institute resembled the Maryland Institute in several ways. Both provided popular lectures, a science curriculum, and practical courses in the “useful arts.” But the institute in Philadelphia had opened a classical high school two years before their visit. Over the three-year course of study at the school, students “took Greek and Latin every year, three years of mathematics and French, two years of Spanish and drawing, plus courses in history, geography, political economy, astronomy, natural philosophy, chemistry, bookkeeping, and stenography.” The curriculum Rogers had in mind for his school differed markedly. He saw little need for the classical languages for his students and believed his institution should have a more specific, practical focus. While the Philadelphia school prepared students for classical colleges, Rogers offered an entry into the world of science and practical knowledge.37

Rogers’s scheme apparently filled a need. Two dozen Baltimore students signed up from the start. He invited Henry to join him in the teaching duties, and both instructors soon found the load burdensome. “Henry and I have found our engagement very fatiguing,” he commented. “We have recently instituted a plan in the school which enables us to relieve each other on alternate days.” Despite the labor-intensive routine, Rogers took pleasure in the upsurge of interest in practical education. In Baltimore he witnessed a popular excitement over emerging technologies and science. A grand procession of the state’s officials and citizens, for instance, filled the city in celebration of the construction of a railroad. Rogers also found his lec-
ture hall crowded with curious listeners and marveled at the rapid growth of institutions across the nation that provided courses for science enthusiasts.\textsuperscript{38}

In August 1828, Rogers’s time in Maryland came to an abrupt end, however, when his father, Patrick, died. Traveling on the way to visit his sons in Baltimore, Patrick fell to malaria, which had also taken Hannah, his wife, to her death eight years earlier. Following the tragic summer month, William received an offer from the College of William and Mary to fill the chair previously held by his father. By September he had submitted letters of recommendation from colleagues and, shortly afterward, secured the position. He received more than recommendations from his colleagues; he also got advice. Some viewed the position as an excellent opportunity. Others were not as sanguine. The college by this time had an uneven reputation, and their advice raised such concerns. One advisor warned that perhaps “your ultimate advancement would be more promoted by your remaining here. They state that there is now opening in this country an extensive field for highly respectable and lucrative exertion in the growing spirit for works of internal improvement demanding the superintendence [sic] of scientific men.” Rogers, well aware of exciting possibilities in Maryland with internal improvement projects, stood at a crossroads.\textsuperscript{39}