

**Matthew Pearl**  
**“Tech Forever”**  
**a prequel to *The Technologists***

I.

*If ever I return that way,  
And she should not decline me,  
I evermore will live and stay  
With the girl I've left behind me!*

“Not too bad, is he?” Marcus asked.

“He has a fine voice,” said Frank blandly.

When the man at the piano finished, they applauded and lifted their beers to him.

“The waitress said he'll sing again here the week after next,” said Marcus. “Then he's shipping out on a merchant vessel to Japan. I like how he smiles while he sings. We should make a point to come hear him next time before he leaves. What do you say?”

Frank did not respond, his eyes fixed on the glow of the open stove. Later, while a few of the other men from the machine shop came over to offer halting congratulations and Godspeeds to Marcus, Frank was standing by the stove flicking drops of his beer into the flame.

Marcus walked over. “Say, Frank, what's the trouble?”

Frank put his glass down and pulled Marcus by the arm out of hearing of their friends. “Marcus, don't you see? You'll go to that place, that college of theirs, they'll chew on you and

spit you back and it will show once and for all... well, perhaps we are meant to be machine men forever!”

“If that is the case, I will come back to the floor wiser for it,” replied Marcus evenly.

“We're twenty now. I've heard of foremen who are as young as twenty-one. If you leave now and come back, you'll lose your priority to the title.”

“I know, Frank.”

“During the war we spoke of being foremen in Boston, Marcus! Don't you remember? When did it change?”

“When Professor Rogers walked onto the machine shop floor,” Marcus said. “When my stepfather said I wouldn't belong in college.”

“What does your mother think of all of it?”

“I couldn't say. She stands up and walks out of the room if it is mentioned.”

One of the new men at the works who had been nicknamed Sloucher George walked past them and chortled, “Collegety dolt!”

“I'm going to strangle that brute,” Frank said, but he made no movement toward the stronger workman, who was greeted with approving laughter by his mates.

“But you agree with him,” Marcus said. “You believe I am making a mistake.”

“I have concerns,” Frank said. He was a slender man with bushy hair that he now tousled restlessly. “I cannot help but fear for you! How would men like us do at a college with men like...” He didn't finish his sentence, maybe because he didn't have the slightest idea how the other men would be.

“Remember what Professor Rogers told me,” Marcus said. “The Institute of Technology is to be something different.” He tried to sound confident and reassuring to put his friend's concerns at ease. He tried to sound like Rogers had that first day they met and then again

during their private interview. But Marcus's own doubts were multiplying by the minute. He hated the smell of grease and oil that clung to him even after he had changed into a new suit of clothing. A little bit of his fear dropped away when he saw Nathan Bowers part the curtains at the entrance. At least he would not be climbing this steep path by himself.

“Say, fellows!” Nathan greeted them, his mouth chewing happily and his eyes big with excitement. “Why the long faces?”

“Today was Marcus's last day at the locomotive works,” Frank said.

“Well, I hope my brother workmen at the glass works will miss me half as much as you'll long for Mansfield,” said Nathan genuinely. “They looked right through me like I already was gone when I told them. Mansfield, you're lucky to have a friend like Brewer.”

“I'm lucky to count him as my friend,” Frank responded.

Nathan gestured at the other side the room. “Let me ask you a question. Do you fellows think that pretty waitress longs to kiss a handsome college man with her plump pink lips?”

“Maybe a rich college man!” Frank said, laughing.

“I'm trying it out!” Nathan exclaimed, clapping his hands together and cackling playfully. “Let go now, unbelievers!”

Marcus and Frank each grabbed an arm and held him. Nathan Bowers was a big man who was bulkier than he was strong, but it was not easy to keep him back.

“She might not believe us, Bowers,” Marcus said, infected with his friends' laughter.

Then, after he pulled free and crossed the room, Nathan stopped and called back urgently, “Mansfield, what does a collegey say when he talks to a girl?”

## II.

On their first day, Marcus arrived to Boston on the early train. He wore a gray unfitted tweed overcoat with the shaggy fur collar with his gray trousers, light shirt, plain vest and best cotton neckcloth, which wasn't much better than his worst one. Standing across the street from the Mercantile Library, he stood and watched, trying to identify who might be his fellow freshmen out of the many figures approaching the building. The words of his stepfather, the potent silence of his mother, the doubts of Frank Brewer that echoed his own, all these united to weigh him down right there on the sidewalk and paralyze the effort of his legs to continue on. He realized he could make not even begin to guess which of the men entering were going to the Institute of Technology. That was what made him decide to turn the other way to leave and never come back.

“Mansfield!” Nathan Bowers exclaimed, approaching through a crowd of busy pedestrians and taking his arm. “Thank goodness you're here. I don't know if I have courage enough to march into those doors alone.” Marcus admired how Nathan could express openly the fears he tried to bury.

“Then we'll go in together,” said Marcus.

“You think I shouldn't chew?”

“I think you should do exactly as you always do.”

“I do always chew!” Nathan said.

Nathan spit out his plug of tobacco before they entered which, it turned out, was the right decision. No chewing or smoking was allowed inside the rooms. It seemed to Marcus that all twenty-seven young men who gathered in the lecture room to hear the president's introductory remarks shared a tentative air and a hunger for what would come next. No one

dared to do anything that first day to draw attention.

The Institute rented two rooms plus a small office on the first floor of the big stone building in the center of Boston. The larger chamber was used as lecture room and the adjoining one a laboratory, equipped with a small muffle furnace for assaying silver and similar tasks.

There was so much work to do in their classes that more abstract concerns were suspended, at least for now. They had to simultaneously master four phases of mathematics, mechanical and free-hand drawing, elementary mechanics, chemistry, as well as French, which would be followed by German. Many of the subjects were new to all of the students, regardless of whether they had come from Beacon Hill or Ann Street, and whether their schooling was at Phillips Exeter or the factory floor. Even if they had previously studied some basic scientific and mechanical principles, finding oneself in the laboratory carrying out experiments was simply breathtaking. Not at the printing press when he was younger, not in the prison camp crafting tools of escape, not at the machine shop in control of the massive drill, had Marcus experienced such acts of raw creation.

“A wide separation has existed prior to our time between theory and practice,” Rogers had told them in his welcome address. “But in every fabric that is made, in every structure that is reared, they will be closely united into one interlocking system. The practical is based upon the scientific, and the scientific is solidly built upon the practical. They will come together here through the vigor and optimism of your youth. You collegians—you gentlemen—you technologists—come from a wide variety of places with a variety of experiences but you are all of one equal heart here at the Institute.”

Marcus knew most names of his fellow students after the first two weeks. But after he heard some words whispered near him (“charity,” “factory,” “machine shop”), and sentences

abruptly ended in his presence, he made no attempt to involve himself with the others, not the fellows with finely tailored suits nor the other charity scholars. Except for Nathan Bowers, of course. During their free time, sometimes they would take walks and talk about their fears and thrills of their new life. More often, Marcus would find an empty corner of the lecture room in which to sit alone and study.

At the start of the third week, they were to be given a brief examination to measure their progress in plane-trigonometry. Their mathematics professor, a tranquil, introspective man named Runkle, explained that the purpose was not to punish those who did not achieve higher marks, but rather to gauge the effectiveness of the new college's curriculum on this first class of students.

Marcus was sitting in the same row as Bryant Tilden, a lantern-jawed fellow of eighteen who wore tight fitting, busily decorated vests and floppy hats. On one of the first days of classes, Tilden had struck up a conversation with Marcus filled with boasts and camaraderie. It seemed Marcus had made a friend without trying. "Harvard wanted me awful badly, but I like to do something new," Tilden said. "I bet they tried to nab you, too, didn't they? We're two birds of a feather, I could tell that when I first saw you. We'll be fast friends, you and me, Mansfield. I'm a great judge of character." But then Marcus overheard another classmate, Charles Preble, whispering something to Tilden the next afternoon as they left the laboratory. Tilden looked back at Marcus, then turned the other way in disgust.

As Runkle gave instructions prior to the trigonometry examinations, Tilden was fidgeting, kicking the back of the seat in front of him, and wiping his brow. Marcus was weary from two extra hours of studying the night before and his classmate's movements distracted him. At one point, he looked over as Tilden was pulling at his own sleeve. He was writing a formula on his shirt cuff.

Marcus did his best to appear as though he had not seen, but he was too late. Tilden's head snapped in his direction and a fierce scowl flashed over his face. Marcus had already lost the first friend he had made at Tech.

### III.

“This will be magnificent,” Marcus said.

“It looks like it could be a castle,” Nathan said, taking off his cap out of a respect to the place. “Or a fortress! Why, magnificent, that's the right word for it.”

On a cloudless Wednesday afternoon, the two friends had taken the horse-cars to Boylston Street and then walked to the location of the future building of the Massachusetts Institute of Technology. As yet it was little more than a massive stone and brick footprint surrounded mostly by empty land, along with other craters of construction, in the newly filled-in Back Bay section of Boston.

“Don't it worry you at all, Mansfield?” Nathan asked with sudden urgency.

“What?” asked Marcus.

“It's been a month. Two fellows have already gone from the class, and I hear today is Preble's last day. That his father wouldn't let me stay in another week longer once he saw what kind of education it was, said it could be a dangerous influence on him.”

“You know what Rogers says,” Marcus reminded him. “The Institute is something different than any college before. Not everyone will find it to suit them.”

“They say some of the men are struggling with the studies.”

Marcus thought of Tilden and his shirt cuffs. “How do you feel about the studies, Bowers?”

“That I was born to do it,” Nathan said quietly but with great pride.

“We should go back,” said Marcus. Neither man could afford a watch, but they had drawn a circle in the sand with a stick placed in the center and had marked the position of shadow when they had arrived to estimate how long before their free period ended.

When they exited the horse-cars near the Common, they turned to walk up Summer Street back to the Mercantile building. They came upon Bryant Tilden at the peanut roasting cart. Tilden had kept to himself in a state of sulkiness since Marcus had seen what he did the previous week.

“Well, look here!” said Tilden. “Look at the pair of old dogs coming my way! My lucky day, I guess.”

Marcus slowed his step. “Take care with this one,” he began to say in a low whisper to his friend, but Nathan interrupted. “Come now, Mansfield, these are our fellow Tech men! Don't want to ride the high horse with them.” Marcus wanted to ask which high horse either of them had ever been on, but Nathan already stepped forward and greeted their classmate heartily.

“Did you hear the news?” Tilden asked. “Ungainly 'ol Preble isn't coming back after the end of classes today.”

“We heard about Preble, too, Tilden,” said Marcus. “And I'm sorry to hear it.”

“Well, it means we'll be down to twenty-four now in the freshman class,” said Tilden, sounding incongruously pleased. “They're dropping like flies already. It just makes you wonder which fellow might be next.”

“Don't look at us!” Nathan said with good humor as Tilden stared at them a moment too long.

“Next thing, I'll wake up and find the Institute letting women into our laboratories,” Tilden said.

“What do you mean by that?” asked Marcus.

“I mean, look at what I see before my eyes: Two filthy factory boys—in college! Say, you wouldn't like a peanut?” He held out the greasy paper bag in his hand.

Marcus had to use both arms to stop Nathan from charging their classmate. Thwarted, Nathan spit his tobacco onto the sidewalk at Tilden's feet. Tilden only cracked another nut between his teeth.

“Good afternoon, gentlemen!” From around the corner came another of the Tech freshmen, a handsome and cheerful fellow with bright eyes and golden curls of hair. Marcus had noticed that in their classes the newcomer wore a carefree attitude even when speaking on a dry and serious topic of science. He appeared at the last signs of their fleeting quarrel. “How are things here?”

“Awful good, Richards,” said Tilden, still chortling to himself.

“Fellows?” the newcomer said, turning toward them.

Marcus and Nathan both nodded rigidly.

Tilden had twirled out his gold chain from his pocket and checked his watch, shining it with his sleeve. He whistled with surprise. “Time to go back already, isn't it?”

Dinner break was followed by a lecture on the phenomena of the laws of sound by President Rogers. After that, they all took their places in the laboratory. In contrast to the controlled methodology that would follow, the beginning of the laboratory sessions were always chaotic, the students flitting back and forth, excitedly grabbing their equipment and chemicals and arranging them at the tables. Marcus was concerned when he noticed Nathan had not yet arrived, and even more worried when he realized Tilden was not there either. Tilden came in first, followed a few minutes later by Nathan, who was clenching and unclenching his right fist repeatedly. His knuckles were red. Marcus felt a tremor shoot through the joints in his own right hand, as though the pain in Nathan's flesh had been transferred to him.

“You heard about Preble?” asked the class gossip, Albert Hall, who was sharing

Marcus's demonstration table on this day.

“I heard he's leaving the college,” said Marcus wearily.

“Not that! That's old news, Mansfield,” Albert chided him. “President Rogers himself visited Preble's father yesterday evening and convinced him to give the fellow another chance here. Say, what's the matter with Bowers over there?”

Nathan, who was at a table across from them, was visibly agitated, gnawing at the corner of his mouth as though he were still chewing his tobacco. He might have been irritated with Hammie, who was prodding Nathan's equipment, but Marcus knew better. Tilden's words had stung him deeply.

“Did you know,” Albert continued, moving on to the topic of Nathan's current laboratory partner, “that Hammie is the wealthiest of the students here? Do you know how I know that?”

“No.”

“Because, Mansfield, I have looked into the matter and made a list of all the students by family wealth—except for us charity scholars, of course. Bryant Tilden is the next wealthiest after Hammie.”

“Why in the devil would you do that, Hall? So you can bootlick the richest ones?”

“No, Mansfield,” Albert said, unruffled by the implication. “So I can stay *away* from them. They can cause men like you and me the most trouble, you know.”

Just then, as Nathan poured a clear, smooth liquid from a beaker into a large glass crucible, there was a loud pop quickly followed by an explosion. Pieces of shattered glass shot through the air.

Marcus rushed to his friend, who dropped onto his knees, holding his hands in front of his face and flexing his fingers. At first, Marcus thought Nathan had burned his hands, but

later he would realize his friend was trying to comprehend what had happened.

“All right, Bowers? Are you hurt?” Marcus asked.

Nathan keeled over.

“This is just the sort of thing why Father wanted me to leave!” Charles Preble whispered to someone nearby.

“Fetch a doctor!” “Someone fetch a doctor!”

Marcus looked behind him, where the shouts came from, and for a moment could see only the thick splatter of blood on the wall. Then his eyes landed on Hammie, who was flat on the floor, unconscious, his neck coated red, with half a dozen other Tech students gathered above him, their vests speckled with his blood.

#### IV.

One of Marcus's regular duties as a charity scholar was to clean laboratories, since the Massachusetts Institute of Technology did not have sufficient funds to hire a janitor. It was especially important to clean after an accident in order to prevent exposure to harmful fumes or chemicals. On this afternoon, it was all Marcus could do to concentrate on scrubbing up the mess, while his thoughts were in the next room with his friend.

The professor and all the students had moved as a congregation into the other room while the doctor examined Hammie and Nathan, leaving Marcus in the laboratory alone. Then he made an abrupt decision, a visceral one seemingly made by his hands instead of his mind. He used a pair of pincers to secure a careful selection of glass shards and chemical residue from the accident in a tin case. He then concealed the case and wondered about what he had just done.

After an eternity passed, or at least it seemed to be an eternity to Marcus, Albert Hall came running in to give Marcus a report. He said that Hammie's skin had been pierced by a long projectile of glass, generating the large quantity of blood, but the doctor determined nothing vital had been injured. It was the fright from seeing the blood that had caused Hammie's loss of consciousness. The doctor also examined Nathan. He was having trouble seeing and hearing properly.

Nathan was immediately sent to his lodging house for rest. Hammie was sent home, too, but when classes were adjourned for the day Marcus, upon exiting, noticed Hammie standing at the corner of Hawley Street outside the Mercantile Library.

“Come here! Say, come here!” Hammie called out. He wore a bandage around his neck and down across his shoulder.

Marcus was walking out of the building at the same time as Whitney Conant, a soft-spoken true Southern gentleman who was asking after Marcus's welfare. Marcus said nothing to Conny's questions; he was still numb from what had transpired. Besides, all he could think about was Nathan. When they heard Hammie's whisper, which sounded like a cat gasping for air, they started to approach him.

“Mansfield! Just Mansfield!” Hammie hissed, taking a few steps backward. Conny tipped his hat and went the other way.

“Hammie, are you unwell? Aren't you supposed to be home resting?” Marcus asked as he approached with a little hesitation. Hammie was one of the least predictable, most intelligent, and wealthiest students at the Institute. Someone Albert Hall no doubt would say to stay away from.

“Say, Mansfield, I want to ask you a question,” Hammie said. “You wouldn't mention anything to my father about what happened today, would you?”

“I haven't seen your father at all,” Marcus said. “Not since starting at the Institute.” Even if he were by chance to encounter Chauncy Hammond Sr, a wealthy businessman—and Marcus's former employer at the Hammond Locomotive Works—he would not risk injuring Nathan's reputation outside the college by speaking about his accident.

“I suppose you haven't at that,” Hammie said with satisfaction. “See to it that you keep quiet about it, anyway, Mansfield,” he ordered, then, indicating his neck, “This little thing is hardly a cut, you know. The doctor said I took it bravely. But an injury to the flesh is nothing at all to a man of true strength.” Without a good-bye or any query about Nathan's well being, Hammie turned on his heel. Marcus lingered a moment, studying the awkward trot of his undersized classmate, trying to fathom why Hammie would wait there only to tell him not to

speak to his father. It was likely not the accident or the injury Hammie wanted to hide from Hammond Sr, but the fact he had fainted.

Marcus went directly to Nathan's boarding house, but had a sudden realization and a pang of frustration as he reached the street door. Nathan had mentioned in passing the week before that he had heard of a less expensive room elsewhere and was contemplating moving. Sure enough, Marcus found now that Nathan no longer resided in the building and the landlady did not know where he'd moved. Marcus went to three other boarding houses he knew were in the area but his search turned up empty. As much as he wanted to, he could not go to every boarding house in Boston looking for his friend, and after trying a few more on the next street he went to the train station to return to Newburyport for the night.

Marcus quizzed the other charity scholars the next morning but none knew Nathan's address.

“You know, Mansfield,” Albert said, catching Marcus's sleeve, “you can tell your friend when you see him he'll have to pay me.”

“What?”

“The breakage fee. For the equipment he shattered! It's my duty to collect all breakage fees owed by students, you know. It's not that I enjoy it. Well, I do enjoy helping keep the Institute afloat financially, so I take that back. You will tell Bowers then?”

Marcus stared a hole through him. “You ought to pray he gets better, Hall.”

He turned and walked away from Albert, not wanting to test his restraint on this day. As it turned out, he wouldn't have much choice. During Rogers's physics lecture that morning, Tilden leaned toward him and whispered, “Down one factory boy now, aren't we, Mansfield?”

Waiting only long enough for Rogers's back to be turned to them as he wrote on the blackboard, Marcus erupted out of his chair, taking Tilden by the collar with both hands. Within moments, the entire freshman class was locked in a brawl, pushing, grabbing, pulling.

Though he was hearty enough to try it, President Rogers did not try to pry the young men apart. Instead, he calmly removed a gyroscope he had just brought to the Institute and set it in motion. The boys one by one stopped their fighting. Fixing neckties and tucking in shirt flaps, they passed around the awkwardly spinning object in silence and awe.

#

The next morning, Albert Hall approached Marcus with a purposeful step in the hallway. Before Albert could speak, Marcus wanted him to know he would suffer none of his usual verbiage or insensitivity about Bowers. “What do you want, Hall?” he demanded

Albert pouted as though hurt by the brusque greeting. “From time to time, I am entrusted with the task of delivering messages from the faculty.” He handed Marcus a card with President Rogers's name, asking him to come to his office the next morning. “President Rogers is away on personal business the rest of the day today. You are to see him privately tomorrow.”

“Are you assigned to read the messages you deliver?”

Albert, flustered, turned and walked into the classroom.

During dinner, Marcus found his usual empty corner of the lecture room where he sat with his notebook and pencil. Now he had President Rogers to worry about, on top of the condition of his friend. Did Rogers know he was the one to start the melee in his lecture? He felt ashamed causing trouble for a man who believed in his abilities.

Marcus shook off the concerns and went back to his studies. Then he heard: “Factory boy! You there, factory boy!”

This time the taunt was issued not in a sneaking whisper but in a booming, unapologetic voice. Still, Marcus wouldn't turn his head. A paper dart glided over him and landed rather gracefully between his boots. He picked it up and studied it.

“Notice,” the voice continued, “the lower corners are folded up to the middle—that provides far better flying velocity. My own design. My governess looked like a porcupine by the end of a lesson, with her hair filled with these—but then again the old girl looked like a porcupine without help.”

Marcus now turned to face a tall, handsome freshman, with an air of brashness and familiarity in his wide smile, as though the two young men had known each other all their lives. It was Bob Richards, who had come upon them during their exchange with Bryant Tilden by the Common.

“Is that really what they've been calling you?” he went on when Marcus still sat silently. “Factory boy? Is it intended to be insulting? Goodness! I'd as soon walk through fire as take that as an insult.”

“Why is that?”

“It means you'll be more of a machine man than any of us can learn to be from a classroom,” Bob said, stretching his hand out. “Mansfield, right? Bob Hallowell Richards, by the way. You are the one who took Tilden by the neck yesterday. He is jackassable. I've been wanting to do the same thing since we were five years old. They are afraid of you, old boy, only because you belong here. Fellows like me, on the other hand...How my father would toss and turn below the dirt of Mount Auburn to know I chose the Institute over Harvard. Here, have

one.” He held out a cigar that Marcus declined. “Not a smoker? Well, come anyway—you can finish my dinner while I have a puff before mechanical drawing.”

“What makes you think I want your dinner?”

The truth was, he was living on about a dollar a week. He had to spend most of his small store of money on the books and papers he needed for classes, and food was the first thing he sacrificed, since his stepfather deemed his lodging enough charity. The saucy smells from Bob's tin alone made him salivate.

“I know because I watch,” Bob replied, arching his eyelids wider. “That is what I do and have done since I was a boy, spying on the habits of the birds and animals, before long learning what every twitch and movement of the frog's eye meant. You take small bites from the same biscuit throughout the day.”

“I'm not a frog,” replied Marcus bitterly.

“Understood. You aren't letting me go alone, right?”

Marcus gave a slight smile and followed him down the stairs and outside the building. He still refused Bob's tin in spite of his protesting stomach. Bob put it down on the front steps.

“You seem like a strong fellow,” Bob said as he lit his cigar and looked him over. “You served in the war, I'd wager?”

Marcus did not reply.

“That's a 'yes',” Bob continued. “See, if you didn't, you would change the topic or make some excuse for yourself. But since you did, you are modest and stay silent.”

“You never exhaust your observations, do you, Richards?” Marcus asked.

“Ha! Not yet!”

“Did you serve?”

“I would gladly, if I were chosen in the draft,” said Bob. “But they say there's too many men now, as it is, and that the conflict cannot last much longer.” They exchanged glances, then both broke into laughter. “One day you'll tell me all about how it was for you in the war.”

“Why are you so certain I would tell you anything about it?”

“People believe me an unserious man so they always tell me about their serious matters. They think it will make it all less somber. Mansfield, I have an important proposition to make. Important to me and to all Tech, really.”

“Yes?” Marcus's eyes kept returning to Bob's dinner tin.

Bob crossed his arms. “I can't speak while I'm smoking and the other fellow I'm talking to is doing nothing. Please eat something. For my benefit.”

Marcus needed no more persuading and began to devour a top notch beefsteak in thick sauce.

“As I was saying,” Bob went on, “I want to attempt a grand dodge. In Professor Bocher's class.”

“Why?”

“Listen, I know having some French and German will be useful to examine the scientific journals and books. But how can I sit through lessons on grammar when the mysterious fumes of the laboratory beckon us.”

“What is your idea?” Marcus asked, mostly to give himself enough time to finish eating.

Bob explained that he knew where to find a large ancient bell. Marcus would help him carry it to the room that sat above their classroom. Using a series of ropes and pulleys, Bob would invent a system to cause the bell to toll above the professor's head every time he stepped on certain planks in the floor or balanced a book at his standing desk.

Marcus paused before replying to try to understand the point of the exercise. “Why?”

“What do you mean 'why'?” Bob asked, blinking in disbelief. “The first ruse of the Institute. We will be legendary! As soon as I thought it up, I knew I'd have to do it.”

Marcus took a moment to think. He had to win more allies in case Albert Hall or Chauncy Hammond Sr. made trouble for Nathan. He did not know where Bob ranked on Albert's list of wealthiest students, but judging by his impeccable dress and easy manner, and what he had said about Harvard and knowing Tilden since childhood, Marcus suspected he was a member of Boston's aristocratic class. Who else would introduce themselves using two surnames, especially ones like Hallowell Richards? But there was something else, too. With Nathan absent, Marcus suddenly felt more alone at the Institute than he had since the first day before he climbed the threshold into the Mercantile Library building. Though he knew all of his wealthier classmate's convivial talk could be a cloud of distraction to secure his help for his foolish prank, at that moment, he wanted as much as anything to be counted as Bob Richards's friend.

“I don't want to be legendary,” Marcus said.

“So you won't do it?” Bob looked crestfallen.

“I'll help you, Richards. But when you tell your stories, pray leave my name out of them.”

“You wouldn't get the credit for being the mastermind, but you would be missing out on being applauded for your courage.”

“Do we have terms?”

“More glory for me,” Bob said, grinning. “We have our terms, Mansfield.”

V.

“Thank you for coming to see me, Mansfield,” Nathan said.

“I'm only sorry it took so long. When the secretary for the Institute came to Rogers's office today, I persuaded him to give your new address to me.” When Nathan had responded to the knocking and Marcus admitted himself, he could not help but notice the room was far more cramped and severe than Nathan's previous lodgings. Perhaps that was the reason Nathan had not mentioned the location of the new room. “How do you feel today, my friend?”

“Oh, strong. Strong as a giant, Mansfield!” Nathan was wearing his cap as though ready to go to classes. But he seemed to have trouble adjusting his back and neck into a comfortable position on the two thin pillows upon which he was lying. When Marcus brought his glass of water closer to the edge of the table nearest the bed, Nathan thanked him and said, “The doctor wishes me to remain in bed for a week. But I feel I could climb a mountain, I vow to you.”

“You must listen to the doctor,” Marcus said. “Even if he is only being cautious.”

“How terrifying it was. For almost an hour after it happened, I could hardly see nor hear a thing. He says it was the temporary effects of the explosion, and thank heavens he was right.”

Marcus shook his head. “The important thing is you are recovering so well.”

“I don't know what happened,” Nathan said, holding his hands in front of his face and moving his fingers around as he had done just after the accident. “I thought I did just as we were supposed to. I must have been careless in some fashion!”

Marcus leaned forward and took hold of his friend's arm. “Why agitate yourself, Bowers? Do not think about the accident any longer.”

“Did you know President Rogers was here?”

“Really?”

“Yes. Rogers himself. He called on me right here in my room this afternoon to speak to me about what happened. He was as true a gentleman as always. He said laboratory accidents are the price of science, and I needn't worry about being admonished for what happened.”

“That is excellent news. The best I've heard in a long time,” Marcus answered, patting him on the shoulder.

“No! No, Mansfield, it ain't anything excellent, because there's still the breakage fee.”

“What?”

“It is in the by-laws of the college. It was my accident, and I am responsible to pay for the damage. Albert Hall sent me the bill here this afternoon. I think that weasel grinned ear to ear when he wrote it out! He puts on airs as if he ain't as much a charity scholar as you or me.”

“Hall? He said he didn't know your address when I...” Marcus paused and thought more about it. “Hang it! I'm sorry, Bowers. That gossip Hall was standing in the hallway when I asked the secretary for your new lodgings.”

“It's not your fault.”

“How much is the damage?”

“Forty!” Nathan said, chewing at his lip. “Forty dollars, Mansfield, and—” he lowered his voice to a whisper, probably in case the landlady was walking by, “—I have but twelve to my name.”

“Never mind that,” Marcus said. “I will help.”

“You haven't the money either!” Nathan said. “Anyway, I'd not go so low to take your money, Mansfield. You prove yourself a bosom friend, but I shall have to find some way, or I will be shipped out and be back at the glass factory.”

Marcus shook his head. "No. I don't believe President Rogers would ever ask you to leave the college over money."

"It's not him. It's in the by-laws, the breakage fee must be paid in full for a student to remain in good standing, and I ain't going to have exceptions made to the by-laws on my behalf, Mansfield, not out of some sort of pitiful... well, pity. Not I! I've always earned my place honestly, an' always will." Nathan's lips were trembling with emotion.

"You have nearly a month before they do accounts for the session, in any case. We'll find a way."

"I hope you're right."

"Bowers, I was wondering about something. Before you entered the laboratory, did you have a row with Tilden?"

"What do you mean?" Nathan asked, confused. "Why?"

"You were both late. When you came in, your knuckles were red."

"Oh!" Nathan exclaimed, laughing and shaking his head sadly. "No, we didn't have words. But he bumped his shoulder against mine purposefully. I wanted to knock his teeth in, but, knowing I mustn't, instead I punched a wall."

"Did you badly injure your hand?"

"Not really. It didn't effect what I did with my chemicals, if that's what you mean."

Marcus shook his head, though he had to consider the possibility. "I'm certain it didn't. Does Hammie usually sit next to you in laboratory?"

"He never did," Nathan said, "before that. Say, you sound like a policeman. Mansfield, could you...?"

He reached for the pitcher of water to fill his glass. Marcus lifted it, but as Nathan leaned back into bed his cap fell off. He touched his head where he saw Marcus's eye land.

“My hair got itself singed a bit there on the side,” Nathan said with embarrassment.

“But it will grow back. Tell me, what is the other news from Tech?”

Marcus thought about his altercation with Tilden and Roger's note asking Marcus to see him, but did not want to further agitate his friend's thoughts. “It goes on the same.”

“Go ahead, I don't want you to miss your train home. There's one other thing. The doctor ordered me to take absolute rest, physically and mentally, for the remainder of the week. President Rogers said I needn't worry about any of the work I am missing, but, well, I'd hate to fall behind.”

Marcus removed a sheaf of notebook paper from his coat.

“What's all that?” asked Nathan.

“I copied all of my class notes during the dinner break. They may not be written out as well as Hall's, but I think they will do.”

Nathan clutched them gratefully and began to read over the first page with a beaming smile.

## VI.

When he was admitted into the office of William Barton Rogers the following morning, Marcus braced himself for the worst. His alarm grew at the president's first words after greeting him.

“I am afraid what I have to ask you,” the president began, then paused, “will cause you some discomfort, Mr. Mansfield.”

Marcus sat in a chair across from the president's well organized desk. “Please go on, President Rogers.”

“I know that you are prepared to help Mr. Bowers.”

When Rogers did not say more, Marcus nodded.

“What I wish to know is how Mr. Bowers fares. Not physically, but rather in spirits. I am aware that sharing such information with a faculty member may violate the privacy of your friendship, and I apologize for making you feel any discomfort because of my request.”

“Not so, President Rogers. I know that Nathan appreciates your concern for him.”

“Good, good. I called on Mr. Bowers and found him with a rather brave face on. Yet I cannot help but worry.”

“He is a very rugged fellow,” Marcus said. “But I do think he is rather more shaken than he admits.”

Rogers sighed knowingly. He had a face that could best be described as strong, with a contemplative air and piercing eyes that exuded as much kindness as secret wisdom. It was a remarkable face, all in all, one that could be sculpted in stone and assumed to be from some ancient era when men still came down from Olympus. “You see, Mr. Mansfield, once a man's confidence sinks too deep, it becomes far more difficult for him to engage in the kinds of

science that we do here that require a certain liberal energy and spark. I have seen it before in other men over the years. Mr. Bowers has so much talent and potential, I do not want to see that happen to him.”

“I understand.”

“Then you shall alert me if you find Mr. Bowers struggling with what has happened, or if there might be anything I can do to bolster his outlook?”

“I will.”

“Thank you, Mr. Mansfield,” said Rogers, standing and shaking his hand heartily. “One other thing. What did you think of the gyroscope?”

“What?”

“Did you like it?”

Marcus for a moment thought the president might want him to talk about the fight in class, but realized the topic held much less interest for the older man than their response to their new scientific tool. “Very much, sir. All the fellows did.”

Rogers nodded proudly. “I knew you gentlemen would! What lies ahead of us here, Mr. Mansfield, has not yet been dreamed.”

#

In the middle of the night Marcus was carrying one end of a massive bell from a nearby house to the Mercantile building.

“You have a key for when we reach the building?” he asked.

“No worries, Mansfield,” came Bob's voice from the other side. “I borrowed one from a cousin who is a trustee for the Mercantile Library.”

“Lucky to have a cousin like that.”

“Oh, we Richardses have cousins of one kind or another everywhere in Boston! Why, Rogers's wife is one of them.”

“You're related to President Rogers?” Marcus asked in amazement. He was impressed that a student would admit the connection without fear that he would be seen as not deserving of his place.

“Not directly, but, yes. If you keep track of such things.”

“You want to rest or switch sides?” Marcus asked after the bell had sagged for a moment from Bob's side. They could not see each other's faces around the giant bronze hips of the purloined object.

“Don't worry about me, I could walk backward like this all night,” said Bob. “Just had an itch on my arm. Say, how about this strange business with Nathan Bowers?”

“What do you mean?”

“Well, the accident. You're friendly with him, aren't you?”

“Never mind that. What did you mean 'strange'? Did you see something out of the ordinary?” Marcus wished he could see Bob's face over the bell. He thought if he could see him, he would know whether to trust him.

“I mean merely that it was unfortunate. Say, why are you stopping? Come on, Mansfield! This is heavy!”

Marcus stood in place, the bell getting heavier by the second. Bob's side of the bell became less and less steady. “Tell me what you really meant.”

“Very well!” When Marcus started walking again, Bob said, “You can be stubborn as a rock, can't you? I've noticed your friend in the laboratory before. He's probably the most sure-handed and careful man in the class, and as adept at chemical manipulation as anyone other

than Hammie. Bowers is a bear of a man, certainly, but his fingers seem nimble, even gentle when manipulating the instruments.”

This time, Marcus was actually impressed with the observational skills of which Bob had boasted. “What do you think happened then?”

“I don't know,” Bob answered. “I noticed Bowers seemed a bit preoccupied when he came in to the laboratory that day.”

“That's true. Tilden had been up to his old tricks. Even a momentary distraction could explain an accident, and Bowers had also hurt his hand before class began. But I cannot help thinking there was something more than all that.”

When they reached the building and somehow managed to carry, roll, push, and pull the bell up to the second floor, they stood around for a long time catching their breath.

“Can I show you something, Richards?” Marcus asked when they had recovered from the ordeal. “Can I trust you?”

“I imagine you already have by asking the question.”

He took him to the laboratory room and, with Bob's lantern shining his way, pulled a long tin case out from under the tall mineral cabinet.

“I did something I should not have done,” Marcus said. He explained how he had collected remnants of the damaged instruments when he had cleaned after the accident.

“You might have been detected.”

“Everybody was in the next room with the doctor,” he said. He studied Bob's face in the smoky light of the lantern. He was relieved to find a sincere and thoughtful expression staring at the contents of the case.

“Well, this settles it. We must examine these properly. We'll need equipment, space, privacy, light of course—well, I know just the place!”

Marcus shrunk from the excitement of his new companion and closed the lid of the case.

“What's wrong, Mansfield?” Bob asked.

“Why would you help me?”

“Not just you but Bowers, too. You're suspicious as a spy.”

“Bowers? Why help Bowers either? Are you a friend of his?”

“Not yet.”

“Then why?” Marcus demanded.

“Because he's Tech,” Bob snapped back just as firmly.

#

The prank in the modern languages class went off without a flaw. The professor could not speak more than a sentence without the unseen bell tolling over his head, and he looked around in amazement at the deafening sound each time until finally holding the rest of the class into the hallway.

Marcus was amazed that Bob's predictions about his becoming a hero from the childish ruse were right. That day, Bob achieved instant status as the leader of the Class of 1868, and other students began planning out their own grandiose tricks. But as soon as he had accomplished what he had set out to do, Bob seemed bored with the topic of pranks.

During the next free period, Marcus and Bob hurried out the building with the tin case and made their way to Boylston Street, to the location of the partially-constructed Institute where Marcus and Nathan had visited the day of the accident. Marcus hesitated as they approached.

“No worries,” Bob said, coaxing him forward. “I tell you, between the expense of the construction and the rent for the rooms at the Mercantile, the Institute's budget only allows for workers to be present here a few hours a day. I've been here enough to know the times safest to come.”

The land was mostly deserted except for some men manipulating a large crane on the far end of the lot where granite blocks were stacked one on top of another. “Why have you come here so much?”

Bob laughed. “To carve my name into every stone I can, Mansfield. You only have one chance to be immortalized for the future of Tech! We can chisel some M-Ms if you'd like.”

“No thank you, Richards.”

The basement was the only level completed so far of the massive structure, and Marcus followed Bob, who descended under ground with a confident stride, as though he were meant to be there. To Marcus, the experience of entering here was a profound and intimidating one—the chance to walk through what would soon be the Institute of Technology, and to know that he would be part of this monumental plan for a college. A machine man one day, and the next day a collegey, as Nathan had once said to him. Though maybe Nathan had said this with equal amount of trepidation as excitement.

Bob led the way underground until they reached a wide room that would be a laboratory, and unpacked the materials and equipment they had brought onto a granite demonstration platform. They had examined the class schedules and determined what equipment would not be used for demonstrations for the next week, and not be missed. Marcus had a key to the supply closet since he assisted with cleaning and organizing as part of his charity scholar duties. They did not have very long before the next classes began, but over the next three days, in free periods and after class, by the light of candles and lanterns,

Marcus and Bob undertook a thorough, comparative study of the chemical specimens he had taken from the scene of the accident. By Monday, Nathan had come back to classes, abashed and quiet.

Meanwhile, Marcus and Bob continued their expeditions. They were cautious each time that nobody saw them leave the Mercantile or followed them to Boylston Street. After performing a variety of tedious tests on pieces of the glass containers used by Nathan in Professor Eliot's class on the day of the accident, Marcus identified the presence of saltpeter and Bob confirmed it by repeating the method independently.

“What do you think?” Bob asked, exhausted.

“We're ready,” Marcus said. “We need to show Bowers.”

VII.

“Saltpeter?” asked Nathan. They had brought him there when classes ended. “Nitric acid. Mixed in with the sulfur and the carbon, why, that would produce a blast every time!”

“You see?” Marcus said, nodding. “This didn't come about by you being careless. This was no accident at all, Bowers, and you're not the one who should owe any fees or be assigned any blame.”

“I didn't take up any saltpeter, upon my word!”

“I know,” replied Marcus. “From what we can tell, the bottom of the crucible had been lined with it in advance.”

“You helped with this?” Nathan asked, turning to Bob.

Bob nodded. “I did, Bowers.”

“I cannot tell you—why, I haven't the words—to thank you enough, Richards,” Nathan gushed.

Marcus was struck by how Nathan accepted Bob's assistance without suspicion or question, in contrast to his own slow circling of their new friend.

Nathan suddenly backed away from the display of evidence and looked as though he might topple over. “What does it all mean?” he asked, a trembling hand to his head.

“It means someone planned this to happen!” said Marcus.

“Tilden!” Nathan shouted, red with anger as he regained his balance. “It has to be that villain, doesn't it, Mansfield? He wanted to see all the charity students gone from Tech, one by one.”

“Maybe. From what I know of Tilden, it seems too sophisticated a dodge for him to accomplish,” Bob said.

“I agree,” Marcus said. “But it is possible. Bowers, you also said Hammie doesn't usually share a demonstration table with you.”

Nathan considered this. “Hold on. Are you saying...Why would Hammie do such a thing on purpose?”

“He's an experimenter by nature,” Marcus said. “I know a thing or two about Hammie and his father from the locomotive works. He worked there during the summer. I cannot say with any certainty, but perhaps he wished to be a hero in class to prove something to Mr. Hammond about himself, and thought if he caused an accident he could then rescue you. Maybe he thought he would put out a fire.”

“Do you really think so?”

“It's only a possibility,” Marcus emphasized.

“But it could be any of the other men, as well,” Bob said. “What we know, Bowers, is it wasn't you.”

“What do we do now?” asked Nathan.

“We use these clues as our starting point and labor on it until we discover the culprit beyond a shadow of a doubt,” said Marcus. “Together, we will see to it that you will not take any blame for this. We must keep this entirely secret until then.”

“Maybe not *entirely*,” Bob said with a wicked grin.

“What do you mean, Richards?” asked Nathan.

“I mean if Tilden and Hammie think they're being watched, they may become anxious and lead us to the evidence we need. We wouldn't want them to know we're the ones watching them, of course.”

“How in the land would we have them think they're being watched, without them knowing who is watching them?” Marcus asked.

“By making someone else watch them instead,” Bob said.

#

“Hall, I would like to know exactly what you saw happen the day of Bowers's accident,” Marcus opened a conversation the next morning before their first lecture, as the students were entering and getting situated. Marcus was holding his notebook with a pencil poised.

“Why?” Albert Hall asked suspiciously.

“Well, as you know, it's my duty to clean up after accidents in the laboratory,” Marcus said. “I thought I should extend that and write a report for the faculty about what happened.”

“See here, Mansfield! The responsibilities of the charity scholars are divided by temperament, and I should think mine is much better suited to compiling and writing such a report. Have you ever looked carefully upon your handwriting? Well, let us agree it leaves something to be desired.”

“If you wish to question every single student here yourself...”

“I do!” Albert exclaimed, the stray colic from his hair flopping down over his brow.

“It would require speaking to all the men, including the wealthier students, Hall. I do not know if that would be agreeable to you.”

“Of course it is agreeable! Do not twist the meaning of what I've told you, Mansfield. I do not fear anyone in our class. I merely know when to be cautious.”

“Very well, then,” Marcus said, closing his notebook compliantly.

Albert nodded. “Yes, I should be the one serving the faculty in such a way. I'm pleased that we are in agreement, Mansfield.”

Marcus looked across the room for Bob and Nathan and gave them each a meaningful

nod. Albert removed his notebook and began interviewing their classmates alphabetically by surname.

Later, during the free hour, Hammie left the building followed a safe distance behind by Marcus. Hammie took a leisurely route to the Boston Common, where he sat on a bench, scribbling in his notebook, and threw half his food to the wild ducks who wandered around him. If he had been placed in a nervous state by Albert's questioning, it was not apparent. At one point, Hammie was trying to coax one small duck to eat and followed the creature far enough away that Marcus could safely get closer to his notebook. He only dared stay there for a moment, and saw something scrawled about rules and charter of a new society before returning to his hiding place.

Bob had no better luck watching for any signs from Tilden, who as usual visited the peanut vendor around the corner, strolled around looking into windows of stores, and sauntered back to the Mercantile building whistling a song.

“We'll double our resolve,” Bob said after he and Marcus pooled their frustrations over their lack of progress back at an appointed meeting spot in front of the Mercantile Library. “Hall's questions planted a seed but the fruit might need some time to grow. See where Hammie goes after class, and I'll continue to watch Tilden. I feel in my soul we *will* find something.”

## VIII.

Hammie's activities that afternoon and evening were no more revealing than had been his with the ducks. He walked at a brisk pace from the Mercantile Library to Beacon Hill. His hurry sparked an interest in Marcus, but he soon realized Hammie was counting the number of steps it took to reach his house from the Mercantile. Hammie seemed very satisfied with himself, perhaps because he had estimated the number precisely. Hammie then took his supper alone at a long table Marcus could see through the bay window of the Hammond mansion. Marcus followed his subject to the theater, where an opera was to be performed, before giving up and starting for the train station.

In the morning, Marcus rendezvoused with Bob and Nathan inside King's Chapel a half hour before the beginning of classes. They sat elbow to elbow in one of the empty pews. Nathan's spirits had remained low since the hour of the accident, and by his eyes and tired posture he looked as though he had not been sleeping. Marcus recounted Hammie's uneventful meanderings around Boston.

“What about Tilden?” Marcus asked Bob.

Bob could hardly contain a smile. “Gentlemen, I have it! I have our evidence!”

Marcus and Nathan gasped in unison. “Why didn't you say so, Richards?” Marcus exclaimed.

“You mean it was Tilden?” Nathan asked.

“I will tell you everything,” Bob answered, obviously savoring the audience and attention. “Tilden made another trip to the peanut vendor when classes ended. If I were his dentist, I would be most concerned. He then returned to the Mercantile Library and loitered in front, as if waiting.”

“For what?” Nathan asked.

“I didn't know. For a chance to slip back inside unseen? For a conspirator, perhaps? Indeed, he soon was joined by another fellow, one I recognized but could not name from childhood. I believe he is a fresh at Harvard now. They stood there frozen with anticipation and there I stood with my thoughts carried away by possibilities. Then, my heart sank at what I witnessed next. They started hooting and hollering and throwing their hats in the air for the benefit of a pack of schoolgirls whom, I suppose, must walk past there on their way home at the same time every day. That was what they had been waiting for! How I wallowed in the failure of thinking Bryant Tilden capable of any act of clever deceit! So I began to walk away, when just out of the corner of my eye I saw Charley Preble coming stealthily out from the street door in the back of the Mercantile. This sighting alone was enough to pique my interest, and I decided to become his shadow. Preble led me to the river, where he seemed to be about to throw some object I could not identify into the water—but stopped himself.”

“Why?” Marcus asked.

“I could not say, Mansfield. My guess is that he had a second thought at the last moment that the thing disposed in such a fashion could wash ashore and be discovered. Whatever the reason, he instead placed his burden on the ground, crushing it under the heel of his boot, then dug a hole and covered it with dirt and mud. I was hiding and watching all this unfold. Once I was certain Preble had left, I made my way to the spot and dug it up. This!” There were dozens of glass shards Bob had put in an earthenware container.

“What was it?” Nathan asked him.

“My best guess is that we will reveal the presence of saltpeter once we study these shards and that its composition will match what we found in the pieces of Nathan's crucible. From the curvature of the glass in these two pieces—here and here—I believe this is the same

sort of beaker each of us was assigned our first week in the laboratory, and that we will be able to show only Preble's is missing. Hall questioned every student today about the incident, and while we were expecting Hammie or Tilden to be sent it message, it must have made Preble a nervous fellow indeed in order to enact such a hurried plan of disposal.”

Marcus turned to Nathan. “Has there ever been a jar between you and Preble?”

“Preble!” Nathan cried out, confusion quickly heating into anger. His fingers rubbed the spot where his hair had been singed off as he rose to his feet. “I hardly have passed ten words with the fellow since the term began. Why would he do it? Not another minute talking here, I'll wring his neck! And I'll wring Tilden's for good measure!”

“Calm your thoughts for now, friend,” Bob said, mothering him back into the pew.

Marcus nodded. “Do not let Preble know what we found. Let's confirm our suspicion, then we can bring all of the facts to President Rogers.”

“What will happen to him?” Nathan asked. “To Preble?”

“I do not doubt for a moment Rogers will do what is just and fair for you and for Preble,” Marcus said.

Nathan took a long, deep breath and collected himself. They compared all they knew about Charles Preble, which did not amount to much. Preble was a tall fellow, almost as tall as Nathan, perpetually slumped to one side, balanced on twigs for legs that did not match the rest of his body and his long, narrow head. His voice was gravelly and striking even from across a room. He had been a few years ahead of Bob at Phillips Exeter Academy, and though Bob had heard a variety of stories about him, he rarely saw him or had any personal contact with him. Preble sometimes seemed sympathetic and humble, and other times filled with hostility. Preble's father was a man of comfortable means with a quiet, meek disposition who had never approved of his son's growing fascination with science.

On their way back to the Mercantile building, they discussed how to proceed, guarding against their eagerness with appropriate caution. A hasty move could alert Preble and give him time to concoct a defense or sabotage their investigation. To their dismay, there was a required excursion to a watch factory during the dinner break. They would have no chance to carry out an examination of the new evidence Bob had retrieved until later in the afternoon. To Marcus, the constant ticking of partially built and completed clocks all around them in the factory was a tormenting reminder of all they had yet to do.

They assiduously avoided Preble the entire day and, from what they could observe, he did nothing of note. He appeared interested during the lectures and worked carefully on his assignments during the laboratory hours. As soon as the final class was adjourned, the three investigators reunited at the Old Elm on the Common, from there continuing to Back Bay and to the future college building.

First confirming that the workmen had gone for the afternoon, the students navigated through the maze of pillars, beams and shafts into the basement. Once they had their instruments and materials arranged, they mustered all that they had learned and studied in their months at the Institute to design their experiments. Proving the presence of nitric acid in the newly discovered shards would be the first challenge; proving its composition matched with that of Nathan's broken crucible would be far beyond anything they had achieved before in the laboratory. Not to mention all this had to be done while keeping the evidence in tact. After several rounds of debate and suggestion, they settled on a series of experiments that they estimated would take almost two weeks, considering their limited time each day. After further discussion, they were able to make a few modifications that could reduce the time to just over one week.

“I wish we didn't have to wait that long,” Bob said. “Patience is not my greatest talent.”

“Remember what President Rogers has said,” Marcus reminded him. “That men of science work with truth, not guesses. Patience will bring its reward. We will prove Preble's guilt. Bowers, are you all right?”

Nathan had been restless and pale all day. He had been quiet during their discussions, even though he was by far the most skillful chemist of the three.

“I have to tell you something,” Nathan said.

Looking up at Marcus and Bob, he started and jumped to his feet. Marcus and Bob both looked over their shoulders as the shadow of another person receded from the hall and then raced away.

They all gave chase to the running man and Bob lunged at him, but the intruder slipped out of his hands and barreled right into Marcus and Nathan, cutting through them back toward their makeshift laboratory.

“Preble, stop!” Bob cried as the three reversed course.

Preble stopped only long enough to snatch a long-handled construction hammer that was resting on the floor of the corridor before running into the laboratory. Standing over the evidence, he lifted the hammer over his head with both hands. Marcus tackled him before the head of the hammer could strike the table, pinning Preble to the ground.

“Let me up, you damned miscreant!” Preble cried.

Marcus pried the hammer from his hand and kicked it across the room.

“What are you doing here, Preble?” Bob asked, putting his body between Preble and the evidence as the culprit pushed himself to his feet.

“Before I left the river yesterday, I heard a slight rustling in the brush, Richards. Though I saw nobody, I circled back and watched you steal what belonged to me! I kept my

eye on you all day today at the Institute. You were planning something devious, I could read your face like a children's book. I haven't let you out of my sight since.”

“Why did you do it?” Marcus asked him.

“You think I answer to you?” Preble replied with disgust. “You're all damned fools.”

Nathan's head was bowed, avoiding even looking at the perpetrator, and he was taking quick, heaving exhales. His hands curled into fists. Marcus worried that Nathan would fly at this craven fellow and try to tear him apart—the consequences of that, no matter Preble's list of sins, would be disastrous for all of them.

“You!” Preble continued, turning his wrath to Bob. “How could you be siding with Mansfield and Bowers, who wear the grime of the factory floor still on them?”

Bob stood proudly as he replied. “Because they are Tech, like me, Preble. We are Tech. You are a plain wretch.”

Preble pointed behind Marcus and Bob, his face taut with fear. “Keep him away from me!” he cried. “I didn't intend so much harm! I don't deserve to die!”

Marcus and Bob both turned around. Nathan had taken up the hammer and was weighing it in his powerful hands as though to test it.

Marcus pushed Preble away to save him. Then a series of crashes began and glass went flying into the air. Marcus wheeled around to see all their evidence was now completely destroyed, smashed into a thousand little pieces. Nathan stood holding the hammer at his shoulder.

Preble relaxed, then laughed. “Well. Thank you for doing my work for me, Bowers, you numskull. You've just made my life significantly easier. Now you have nothing to prove your wild and irresponsible accusations against me. See you in class!” He gave a playful salute and

ran out of the chamber, making his way back up to the ground floor without a worry in the world.

“Sorry, Mansfield,” Nathan said. He handed Marcus the hammer. “Sorry, Richards. I really am. I appreciate awfully much what you tried to do for me.”

Neither Marcus nor Bob could manage to speak before Nathan had exited the chamber and begun a slow march up the stairs. The two stunned companions regained their bearings and followed him out.

The wind had risen, kicking up sand and gravel from the desolate surroundings, leaving indistinct the figure of Nathan walking away toward a lonely line of newly planted trees.

“This building *will* be magnificent,” Nathan said before they could speak. “Right now it looks like those ancient ruins you see pictures of in the boys' adventure magazines.”

“Bowers, what have you done down there?” Marcus asked. “Preble's right. Now we have nothing to prove what we uncovered!”

Nathan nodded his head. “Mansfield, if we went and proved some fool at the Institute used science as a weapon against me, how long will that tale be kept a secret? Maybe the other fellows will keep quiet—only maybe—but the next disgruntled father of one of the boys, or the next boy who quits with a bitter taste because he cannot keep up, well, word will spread, count on it. You know there are many all over the city with their knives out against the Institute for having the courage to do somethin' never done before. Look around us, at how much money President Rogers needs to come by to complete this. This sort of embarrassment could have pulled a string that could unravel the whole thing. Besides, men like Preble, with the money, you can't win that fight. I did what I did 'cause there was no other choice.”

Marcus's heart sank and he felt, for a moment, childish at all the risks he had completely overlooked, then felt himself angrier at his friend.

Bob was in a similar state of confusion. “You had no right to take that hammer to our materials without talking it over, Bowers!”

“The Institute, and what it's doing, giving fellows like Mansfield and me—well, *you*, now, Mansfield—a place in college, that's far more important than me. This is a city that let us run the machines and walk among the collegies. A place like that is worth protecting at any cost. Boston is worth protecting.”

“What do you mean by your 'staying'?” Marcus demanded. “You mean you're leaving?”

When Nathan stood stoically without a reply, Marcus turned to Bob. “Richards, do you mind if I have a private word with Bowers?” Bob nodded and walked into the dust storm.

“Bowers, please,” Marcus said when they were alone.

“I didn't sleep at all last night,” Nathan said.

“There was much on all our minds,” Marcus said.

“What I mean is, last night I set out to make enough money to pay the breakage fee Hall has been hounding me for,” said Nathan. “That's what I wanted to tell you. I'm leaving Tech for certain now.”

Marcus thought for a moment, then, in despair, said, “Pray tell me you didn't visit the gambling halls.”

Nathan lit a cigar as though it were his last to enjoy on earth. “I lost everything, Mansfield. The first hour, I was even, a bit ahead at one time, but then... I'm already late with rent this week, and now cannot pay a cent of it. I have only enough for a railroad ticket.”

“I know Richards would lend you money. He is as decent fellow as I've met here.”

“It eases my mind to know you'll have a friend here like Bob Richards. But I wouldn't take his money or anyone else's. I'll find my natural place in the world, like I've always done.”

Marcus was more subdued. “It's not just. Where will you go?”

Nathan shrugged a wide shoulder and looked up thoughtfully. “Back to my family, I s'pose.”

“You can return to the glass factory,” Marcus said.

Nathan shook his head. “My position was filled before I walked out the door. There are too many men and not enough places in Boston.”

“Then I'm going with you, Bowers,” Marcus said with conviction. “We'll go together. There are some mining companies on the way to your family's farm, we can get a place in one of them to start and decide what to do from there.”

Nathan smiled. “I was a collegy for a few weeks, Mansfield, and that's more than I could have ever dreamed. Now what you accomplish here over the next years, will be done for both of us. This place isn't about Newton and Gutenberg and Lavoisier and Smeaton—whoever that is—and Faraday, and all of the rest. It's future will be because of you: Mansfield, Richards, Hammond, even Tilden.” Nathan glanced toward a collection of massive granite blocks stacked on the ground. Each one had a name of a prominent scientific genius chiseled in raised stone. These were to be hoisted above the Corinthian columns and would surround the building. “You know, I always wanted to know what it was like to hold a diploma with my name on it, since the first one I ever saw hanging on a man's wall. Will you write to me about how it feels?”

Marcus felt himself give a slight nod.

Bowers touched his hand to his cap. “Tech forever, Mansfield!” he said.

“Tech forever,” Marcus repeated, maybe too quietly for Bowers to hear over the roar of the wind. Marcus did not want to stand there watching his closest friend at the Institute walk away, entirely unable to prevent it. He turned around, facing instead that rising skeleton of the Institute, these ancient ruins; his future.

## IX.

Marcus could not bear to think of seeing Charles Preble at the Institute and pretending all was right with the world. But the next day came and there they were, both in their seats, taking notes as though Nathan had never left. Marcus vowed to himself he would not sacrifice his own position by pummeling the rascal. Nathan would not want that. But if Preble ever were to push him, he did not know that he would be able to stop himself.

Then, one day, Preble did not show. Another day, no Preble. The next day, rumors were heard that Preble had left the college, and a few hours later this was confirmed from the lips of the secretary of the college himself. Marcus puzzled over this turn of events until he saw the smile playing on Bob Richards's face. While they were at the gymnasium on Eliot Street, where Bob was showing Marcus how to fence, Bob revealed how he had a second cousin at Phillips Exeter Academy who looked into Preble's records there and confirmed a rumor Bob had once heard of a major violation of the academy's policies that had resulted in Preble being severely disciplined. Bob suspected Preble had not reported his past infraction to the Institute when applying, which would result in immediate expulsion by the Institute by-laws. Bob gave Preble the chance to leave the Institute on his own rather than stain his reputation and Preble took it. Bob had not actually known for certain whether Preble had withheld the information in his application to the Institute, but he'd rolled the dice and the ploy worked.

“I gave him one condition for the bargain,” Bob said. “That he tell me why he did it. Why he caused the explosion in Bowers's equipment.”

“Did he tell you?” Marcus asked.

“He said he did it because he knew he could.”

Marcus wrote to Nathan regularly, telling him every detail about life and lessons at the Institute until his hand was too sore to continue. Nathan in turn wrote with news of his life. After a short time assisting a railroad engineer, he decided to join a three year voyage on an opium clipper. Over the course of Nathan's time at sea, Marcus still occasionally received letters of his adventures. Marcus and Bob still talked about their friend from time to time; their bitterness over it had mostly subsided with both Nathan and Preble so far away. The last they heard about Preble was that he had begun to study at Yale, but was expelled after setting fire to an outbuilding.

The Institute moved its students into the magnificent new building on Boylston Street their sophomore year. By that time, the number of students in the Class of 1868 had dropped to fifteen, counting one new addition who came there after a year at Harvard. Bob Richards never wavered in his friendship with Marcus and his enthusiasm for Tech. Rogers's vision for the Institute was slowly proven to the skeptics, though financial setbacks and public outcry against the new sciences continued, and Rogers's health began to decline rapidly. Hammie vied back and forth for the position of First Scholar with the newcomer from Harvard. Even as they entered their senior year, Tilden never forgave Marcus for seeing him write on his shirt cuffs.

One morning early in April of their senior year, on his way into Boston from Newburyport, Marcus was awakened by the cry of a newsboy and jolted upright in his seat. The whole train was buzzing with excitement and terror. He cursed himself that he did not have money for a paper, but the man in front of him bought one, and Marcus pressed his eye into the gap in the seats and he heard his own breathing heavily in his ears. As he read all he could make out about the strange catastrophe that had startled the entire city, in his mind entered Nathan's voice from the day they said goodbye in front of their future building. A

*place like that is worth protecting at any cost. Boston is worth protecting.* The words sounded as clear as the ticking of a clock.

The story of Marcus Mansfield, Bob Richards and Tech continues in

*The Technologists...*

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