

Tempered: An Alloyed Mind

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Photo Shoot of Ryan Tomich: Age 1

Copper City

Copper is one of humanity's most indispensable materials. Its unique electrical properties, coupled with its natural abundance, have helped drive the modern technological revolution. Yet the true marvel of copper lies not only in its pure form, but in its versatility as an alloy. Mixed with 12% tin and it becomes bronze, garnering additional strength. Combined with zinc, it melts more easily. Blended with aluminum, it resists tarnish and corrosion. Infused with nickel, it becomes seaworthy. Copper, with other elements, provides advantages tailored to circumstance.

At the dawn of the Age of Electricity, Butte Montana - *The Richest Hill on Earth*- was a copper boomtown. Its mines and people sourced the wires that lit up the world [1]. A poster mapping the tangled web of over 3,000 miles of underground tunnels hangs on my dorm wall. In bold print by its frayed edges, it boasts that Butte produced twenty-two billion pounds of copper. To mine this precious resource in the early 1900s required the very resilience of the metal itself: men worked a mile beneath the surface encased in the stone corridors lit only by candles. Their lungs filled

with chalky dust as they heaved their picks deeper into the earth. Over 40% would develop silicosis [2]. Butte was not just an industrial hub; it was a cultural one. It became a meeting ground for immigrants chasing opportunity. Two of my great-grandparents worked in those mines, and molten copper still pours through my veins. From Butte's fiery smelters, now rusted and weathered, I was cast.

I grew up knowing myself as an alloy too: Irish, Croatian, German, Italian, Swedish, Czechoslovakian. My family came to Butte to follow the copper. The closure of mines in Allihies on the Beara Peninsula of Ireland, along with famine during the late 1800's caused an exodus [3]. Copper mining was skilled labor [4], so many families found their skills in demand. They left Ireland for the Michigan copper mines and then on to the copper boomtown of Butte. Folks came chasing opportunity, but when it tipped its hat and traveled on, folks followed out the door. The town still boasts one of the highest proportion of Irish Americans of any U.S. county [5], [6]. Today, the most prominent remnant of our mining history is the largest series of EPA Superfund sites: environmental contamination designations.



Ryan (left) and his cousins Joe (middle) and Jaden (right) hiking the Big-M in Butte Montana.

Natures Nurture

By the time I was born in April 2005, the town's glister had long since faded. The presence that once boomed was now only echoes of old folk retelling their tale. My parents, John and Maureen Tomich, were both educated: my mother a pharmacist at the local Kmart, my father a metallurgical engineer at a talc mine. My grandparents had embodied the same tradition of service and skill. My papa was a dentist, my nana a nurse. My father's parents had passed before I could meet them. At the age of 42, my parents didn't let their first child slow them down. Nestled in a small valley at the edge of the great Rocky Mountains and the continental divide, the outdoors was always near and deeply cherished by the community. I was on my first hike at only a few months old, which speaks more to the grit of my parents than to me.

Being outside was an essential part of my childhood. Since both my parents were runners, they spent countless hours training for marathons, later seeking out trails and mountain lakes.

Interviewing them now, they tell me one of the most important aspects of raising me was

breadth. They imposed no limits on what activities or goals I might pursue, but they were determined that I chase something. I ran track and cross country, played soccer, and took lessons in golf, tennis, and swimming. In the winters, we skied. I was an altar boy at our church for nearly a decade, took piano lessons from the time I could stretch my hand six keys, and spent years in weekly art lessons. The gift of a small community was that all these opportunities were accessible at relatively low cost.

My parents knew that, despite the comforts of home, there was a world beyond our humble abode. Every year, they saved nearly all our expendable income to take the three of us on trips across the U.S. We traveled to ski, to explore, and immerse ourselves in new cultures. We never passed up a chance to get lost in a museum or eat at authentic local restaurants. Above all, we traveled to the National Parks. The basement of my childhood home displays large canvases of our favorites. The stairwell holds artifacts of our travels, arranged like Tetris pieces across the wall. It was always my dad's and my job to hang them to my mom's specifications. Mom had taste and vision; Dad had ingenuity and execution. My family valued experiences over possessions. We didn't want to own a boat, but we wanted to be on the lake. This stood in contrast to the consumerist materialism that increasingly defined Montana life. Needless to say, we never quite "fit in" at home. My dad and I did fun runs and watched old movies. My friends went hunting. There's always been a lingering doubt that questions my Montanan authenticity. Perhaps that's part of what excited me about the East Coast.

These experiences shaped my romantic sensibility rooted in nature, and Montana provided a naturalist's dream. The mountains hold an unthinkable wealth of detail, a granularity that overwhelms the senses. Jagged peaks and sheer cliffs cradle valleys and deep cerulean lakes,

offering them outward as a child might tender a ladybug in open palms. Each pine needle seems etched in infinitesimal precision, juxtaposed against the vast sweep of the land. Wildflowers and wildlife draw you inward. The sheer scale of the ridges pushes you back, urging you to step wide enough to grasp the whole picture. You feel large and small at once. Scattered, yet ordered. As your breath rises and falls, you sense an enlightening balance. The delicate symmetry freezes you still, as though the world itself might tip if you shift your weight. The wind lifts in low whistles; with every note the burden of gravity thins. Your fear dissolves, your body lightens, and every ounce of weight is wisped into the aureate clouds.

Everyone Knows Everyone

A defining feature of growing up in a multigenerational small town is that everybody already knows you. My great-grandparents were active in the labor unions and social circles of their era. My grandparents held public-facing roles. My mother knows the last name of nearly every person in town, while my father was deeply tied to the road running community. The result was that I rarely encountered anyone who didn't know someone in my family. With that familiarity came assumptions that, thankfully, were uniformly positive. As I left home each day, there was a pressure to be someone. Though never enforced, my family always walked out the door with a sense of order. We wore khakis, not sweatpants. There was nearly a guarantee of seeing someone you knew, and I wasn't going to be introduced to my grandmother's dearest friend in a basketball jersey and sagging shorts.

In the same spirit, my kin refused to stop at mere participation. We never just ran the weekend fun-run; we lingered in Staples, waiting for the printer to spit out hundreds of signup forms. Each year, my town hosts two high school track meets. One is named the Tomich Invitational in honor of my grandfather. If you were going to do it, you did all of it. When I met people for the first time, they often introduced themselves not by who they were, but by a thread of connection to my family or by a story of how they knew my parents. Nobody had met me yet, but everyone already knew me. I was defined by my people.

When I was old enough to carry bags, my mother dragged me to the store, despite my best protests. Without fail, if I went with my mother, she would find someone she knew. Whether their last passing was yesterday or yesteryear, they would talk about nothing at all, or so I

thought. To me, this was a dry purgatory. I paced the aisles, scanning item after item, yearning for entertainment.

I could always tell when my mother's first conversation was winding down by listening for the periodicities of her laugh. She has a distinctive laugh, one that ripples through the air and fills the room. No matter the size of the store or the din of voices, her laugh could be heard above it all. She laughs most when she was in conversation, and I reasoned that if we were to finish grocery runs faster, we had to gather everything before she began. So, as I wandered, I began mentally mapping the location of our regular items. The classic child of mathematics might treat grocery runs like a mental abacus, keeping running totals in their head. I had no patience for that. I trusted the register to keep the books. What the machine could not do, at least then, was tell you that Pace chunky salsa, mild, sat in aisle 7, fifteen steps in, right-hand side, fifth shelf up. And if Doritos introduced a new flavor, that same jar would be rolled to the aisle's endcap for swifter retrieval. Neither the scanner nor, often, the employees could tell me that.

My efforts were futile, of course. Even if I knew where everything was, my mother would inevitably fall into conversation and introduce me to her friends before we left the parking lot. Later, stores like Walmart unveiled tools to search for items in their cavernous warehouses of ever-expanding merchandise. The problem was that knowing salsa was in Aisle A8 was no more useful. Where did Aisle A8 even begin? The tools existed, but they didn't calculate the minimum number of steps to gather every item the way I could in my head. Despite the optimal path finding algorithms to solve this problem, there still existed a chasm between the technology's capabilities and its use. Convenient, but not convenient enough for the revolution it promised.

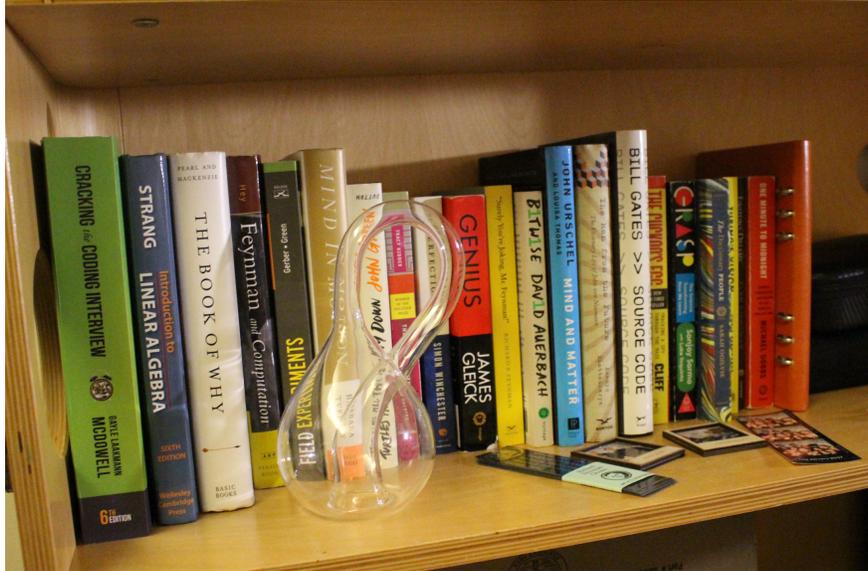
Years later, I returned to that same store on a hurried errand to buy chips for a New Year's party, only to find the shelves reorganized. My mental map of the 2500 Massachusetts Ave Safeway dissolved in an instant. In my wandering I ran into an old friend. The kind of friend who, like an old book, worn and dusted, could be brushed off and reread with an effortless joy as vibrant as the first passing. Before long we had drifted across the street to the Hanging Five café, plates crowded with eggs benedict, my father's old breakfast specialty. Hours slipped by unnoticed until we parted, knowing we would circle back again when life allowed. Only then did I realize what my mother had been doing in those aisles. She wasn't just shopping; she was sustaining these connections that survive absence and interruption. In that moment, I could almost hear her laughter rippling through the air.

Bits-and-Bolts

I remember little from my early childhood. I have photos and stories from others, but it is hard to distinguish whether I recall something myself or only what I was told. One thing I do know is that I had an active imagination. One of my favorite pastimes was what I simply called *running around*. It meant circling our living-room coffee table in endless laps, imagining myself leading an army into battle or riding dinosaurs into the sunset. The oddity was that I rarely remember having toys or any visual stimulus at all. Every detail of the scene was painted entirely within my own mind. When I was older, I received a Razor scooter. Its small wheels and our street's coarse gravel overlay made riding uncomfortable, so I confined myself to our driveway. I carved tight circles into the corners, leaning just far enough to maximize speed without falling into the center or skidding into our lawn. I loved the solitude of thought. To imagine. Later, in high school, I would go for runs along the same five-mile loop day after day, rehearsing practice speeches or arguing myself into wild positions. Now I run a six-mile circuit around the Charles River, retracing the lecture content that lingers with me most. It has always been this way. The rough draft outlined in my head. I have spent much of my life turning things over within myself.

I was part of a robotics team in elementary school. We were a ragtag bunch, more intent on having fun than on winning, though winning sounded fun to me. Each project had two fronts: building the robot and programming it. Building meant working with pristine Lego blocks; a childhood staple of the modern engineer. My friend Jace was obsessed with those little bricks, thumbing through the instructions as if they were scripture. I, on the other hand, never had the knack. I would jam pieces together in ways that fused them permanently, combinations that had never been meant to meet. Programming was different. You couldn't see what you were making.

The course of the robot, its decisions in the world, existed only in imagination. I would sit at the keyboard, eyes closed, tracing through every command in my head, rehearsing how the machine might respond. Somewhere in those long sessions, I drafted what I called the Bits-and-Bolts Bargain: Jace would build, and I would code. I promised not to touch Lego so long as he let me shape the logic. By demo day, both parts were well built.



My current bookshelf at the time of writing. Simmons Hall, Cambridge Massachusetts

Dyslexic Not Dim

My classmates and I circled close to our teacher that autumn in kindergarten, the air thick with the smell of crayons and pencil shavings. She tapped the book with her pen, passing the task of reading like a torch from child to child. When passed to me, I diverted my gaze from the wall down, not at the open page, but to the cover of the closed book in my lap. Words had always resisted me. Stories burned brighter in my imagination when delivered auditorily. Still, my turn arrived. At home, my parents worried over my reading scores, their concern sharpened by the casual verdicts of teachers: attention problems. Yet my focus in every other subject was unyielding. My parents sensed there was more beneath the surface. They leafed through articles, spoke with specialists, learned the many names for difficulties like mine. The school brushed them off. “He’s just a boy,” they said.

I never felt less than in the two hours bent over twenty spelling words, repeating them until they burned into memory. I thought that was what everyone did, but my parents knew better. By the

following year, they had a name: dyslexia. Again approaching the administration, only to uncover a stark discovery: my school, in 2010, had never once accommodated it despite federal law recognizing it since 1975. With no precedent to follow, my parents drafted the first Section 504 plan for dyslexia in the Butte School District.

To accommodate is to adapt, to create space where one can thrive. Too often my teachers mistook it for removal. They suggested waiving requirements, shuffling me to other classes. Lowering the bar instead of helping me reach it. I was not dim. I was dyslexic. I belonged in the advanced courses, capable of every assignment, every deadline. All I asked, at the start, was time: the gift of receiving materials early so I could prepare on my own and keep pace with the class. By fifth grade, I was running my own 504 meetings. I see the origins of my present self in those moments. The careful mannerisms, the resolve to explain, to negotiate. Fifth graders are not meant to chair meetings of adults, but I had no alternative. If it weren't for my strength in mathematics, I might never have been flagged for diagnosis at all. If not for my temperament, I may have been mislabeled for an attention disorder. Survival meant self-advocacy, followed by the work to justify it.

I needed tutoring. Two or three times a week, Margy, a local teacher, came to my home to work me through the Orton-Gillingham reading program. The program used multicolored tiles that you moved around to spell words and practice phonetics. I never recall any sudden breakthroughs. In fact, I scarcely recall improvement at all. Every lesson was difficult. Not difficult in the inspirational sense that stirs you to rise and conquer, but difficult like slogging through mud up to your waist, searching for firm ground that never appears. I did this for more than a year and a half. My test scores suggest I had reached grade-level reading by sixth grade, but even now, I read more slowly than my peers.

At a fundamental level, I don't think I ever liked being told "no." When I was told I was inherently bad at reading, my instinct was to read more. It wasn't enough, in my mind, to simply fall in line. I had to take on the most difficult books, and more of them than anyone else. We had a program where each month, students read books and took a quiz for points. I remember scanning the list and noticing that *Harry Potter and the Half-Blood Prince* was worth 55 points, one of the highest values assigned to a single book. It felt taboo to begin in the middle of a series, so I picked up *The Philosopher's Stone* and began the journey. The Harry Potter books transformed reading from a chore into a kind of defiance. I liked the idea of being the dyslexic who tackled complicated stories out of sheer spite. Carrying a book larger than my head gave me a sense of power, knowing what I knew about myself. My parents never recall a rebellious stage in my upbringing, but I believe this was it. Not a rebellion against teachers or rules, but against an education system convinced that someone like me could never achieve anything at all.

My family once brought me to The Wizarding World of Harry Potter at Universal Studios. It was everything I had imagined—alive with magic. I remember the Butterbeer tasting exactly as I had pictured it on cold winter nights with a book in hand. I collected a few trinkets there, but one became essential: a pin of the Hogwarts crest, which I wore on my hat almost daily through sixth grade.

One day at recess, after rolling around on the ground for some reason I can no longer recall, I returned inside to discover the pin was gone. The moment I realized it, tears welled up. Not sobs. Not a breakdown. Just quiet, bewildering tears. Immediately I was filled with confusion. Why am I crying over this? I remember feeling that an arrangement of colored metal was not worthy of my tears. I think my classmates shared my confusion, which morphed my emotion to embarrassment. The pin was eventually recovered, but the strangeness of that moment lingered.

Years later, unpacking the two dozen books I had stubbornly carried through each move, I felt the same tug. They were heavy, and hardly the sort of collection anyone else would remark upon, yet I lined them neatly on my dorm room shelf. The topics ranged physics, computation, and metacognition. Each volume meant something to me, though I could never quite name what. I only knew that the shelf looked incomplete without them, and that some part of me was reassured by their weight.

Later in my schooling, as I grew more serious about academics, a formal diagnosis was required. We arranged a neuropsychological evaluation in Seattle. I was 13. The exam was held in what looked like a school. Rooms lined with whiteboards and identical desks but notably absent of students. The tests spanned the familiar: reading, writing, math. There was an essay prompt I still remember: describe your experience playing a game. I was never drawn to video games. My mother had little patience for them and still avoids television to this day. I wrote about playing chess with my uncle and making him a replacement pawn. There were odd tests too: memorizing strings of numbers, rearranging blocks to form shapes. I recall finishing with a vague sense of disappointment. That's it? That's all it takes to understand my mind?

The results confirmed what we already suspected: overwhelmingly dyslexic. But there were surprises, too. My processing speed was notably low, which they attributed to "perfectionistic tendencies." And I was classified as "twice exceptional" marked by the large difference in scores of different subjects: Oral Reading Accuracy: 7th percentile. Pseudoword Decoding: 8th percentile. Math Problem Solving: 98th percentile. Essay Composition: 99.8th percentile.

Having my mind measured and quantified was, at first, a relief. I had long wondered why I struggled with things my peers found easy. Friends I helped with math read circles around me. I mulled over these numbers for many years. They became consuming. Defining. I solved this

problem because I'm a 98th-percentile math problem solver. I read that slowly because I'm a 34th-percentile reader. I often wonder had I never been diagnosed, if my abilities would have developed differently. It required no small amount of psychological finesse to treat the report as an explanation rather than an excuse. I, of course, still had to read. Years later, in my college application essays, I tried to articulate it: "I realized the world revolved around reading. Academics had to be able to read, write, and speak effectively." Or, put less delicately by a close friend in a discourse about academic accommodations, "Nobody cares. Nobody cares how it gets done or if it's harder for you. They care about what you produce."



Richard Roche (papa) sitting with visibly upset Ryan Tomich

Blank Blue

Where there was a lull between my day's end and my parents' return from work, I'd go to my grandparents' house a single block away. Nana and Papa had lived there all my life. Most afternoons unfolded the same way: Papa at the kitchen table, bent over a game of Solitaire. He used to tell me if he wasn't winning, he'd switch a card or two; Nana in perpetual motion: yoga, bridge, golf, the Red Hat lunches. She ran the house and Papa, with his humor, kept it warm. Evenings followed a sacred rhythm: Wheel of Fortune, then Jeopardy, but the best days began with overripe bananas. When their peels turned dark black, I'd slip on my flip-flops, pull a T-shirt over my head, and dash through the snow to deliver them. Nana would already be on the phone with my mom who was warning of my arrival. "Aren't you cold?" she'd cry as I staggered in. I'd chatter that running kept me warm enough. She'd laugh as she set the oven for her traditional banana bread.

I'd drift toward Papa. As I rounded the corner, he'd glance up from his cards and grin. "Who are you?" he'd ask, mock-serious. "I don't know," I'd answer, and we'd hold the moment, eyebrows raised in comic tension. It's an inherited gesture that had skipped my mother's generation, to her everlasting annoyance. Papa loved to provoke a smile. He'd ruffle your hair or poke your side, waiting for the indignant "Hey!" so he could respond with his endearing play on words, "Straw!" He possessed a rare kind of charm; a warmth so practiced it disarmed even strangers. Watching him, I could see exactly how my grandmother had fallen in love.

One afternoon, he asked if I wanted to go for a drive. Drives were his escape from Nana's ban on cigars. Reluctant, I climbed into his small blue truck. The ash tray was overflowing, and the seats sticky with tar. Only in Papa's truck could you feel the secondhand smoke pull the fresh mountain air out of your lungs and sprinkle soot back in its place. I never much liked these drives. Sometimes they ended at the Elks Club, where we played handball against walls that had seen better years. Sometimes he'd buy more cigars. This time, we drove out of town and onto a dirt road, the truck bumping and groaning along. Neither of us spoke. My disinterest radiated as I clung to the door, head out the window. I wonder now if there was something he wanted to say. Something he would have, had I been present in that moment.

In high school we moved Papa into the memory unit of assisted living. Nana, sharp as ever, was still charging ahead, and it felt cruel to tether her to his decline, so we made the arrangements. Alzheimer's is no lion. It does not pounce. It waits, patient, hidden in the grass.

Its touch begins subtle, a graze at the ankle, easily mistaken for underbrush.

Mood swings, unprovoked and sudden.

Then, slowly, it coils higher.

Sentences muddle, looping back on themselves.

It wraps around the legs, unmistakable to the victim who now uncomfortable under the compression, becomes aware of what's slipping away.

A name misplaced, just out of grasp.

Its grip tightens with an indifference that chills, never rushing, never stopping.

A wrong turn on the way home.

Then it circles the chest, breath comes shallow as the mind gasps for memory, and the discomfort turns to fear.

Getting lost on familiar walks.

Then, without hurry, it wraps the neck.

I visited Papa for the last time while home on break from college. He asked me again 'Who are you?' His bright blue eyes staring with a childlike curiosity. "I don't know" I said.

He didn't know either.



In the hotel before the first debate tournament of James Hadley (left) and Ryan Tomich (right).

Paramilitary Policy

In early high school it became clear to me that I would follow the academic route. College was not in the cards for many of my classmates, and those who did go seldom ventured beyond the state line. That fall, in the brittle cold of Ms. Johnson's Honors Geometry, she held me after class to make a proposal. "I'm looking to recruit for Speech and Debate," she said. "Have you met James?"

Speech and Debate, soon shortened by James and me to SAD, was a winter refuge. The lone school-sanctioned academic pursuit. Our first-year blurred past in a haze of blunders and bruises, victories scraped together by luck. Speech was about polish: the art of delivering a prepared piece with such elegance and poise that a judge could not look away, a kind of parade drill where every step was rehearsed. Debate, however, was another beast entirely: head-to-head combat where intellect was hammered into a blade and wielded with merciless precision, like duelists fencing under unforgiving lights.

We chose Policy Debate. I, with dyslexia, and James, with ADHD, made for an unlikely duo. Of the events eighty minutes, only eight were scripted. The remaining seventy-two were open field. Chaos distilled into combat, a war without maps or mercy. Policy is famed for its lack of a rule book. It was trench work, where strength was measured in argument and shots fired with oration. The objective was as brutal as it was simple: annihilation. Not a single claim of the opponent was to be left standing; every point had to be hunted down and silenced, left strewn across the battlefield of the flow. We were mercilessly evidence-based. After eight minutes of the affirmative's carefully fortified case, the negative had but five to marshal forty minutes of relentless counter-fire. On average, we unleashed twenty or more quotations per round, each a piece of piercing artillery hurled across the room. It was a storm of scratching pens and quick breath. A storm of clashing minds where victory belonged only to those who struck fastest and hardest, seizing ground one argument at a time, leaving nothing but silence in their wake.

Policy exacted a psychological toll. You could spend hours chiseling your argument to perfection, only to sit in silence as your opponents stomped it to rubble. Worse still, when you had no answer, the clock demanded that you keep speaking. Some of the longest moments of my life were spent stretching two minutes of ideas into eight. By sophomore year, James and I had claimed our spot: a pair of stools hunched around battered laptops in the corner. Morning, lunch, and long into the evening, we lived there. The janitor, half exasperated, half amused, would scold us for haunting the building after hours. One late fall evening as we mapped out the architecture of our next kill, our morbid shorthand for an especially compelling argument, he walked in.

A figure from another world. He wore a full suit and tie, a trench coat still draped across his shoulders, its hem brushing against rubber boots. In one hand he carried a black briefcase. On the

other, a golden ring caught the dull fluorescent light. His name was Gunther Clark. He had once sat in our very chairs, six years earlier, before leaving to study mathematical economics at UPenn. Now he worked for Capitol One but returned with the aura of a man who had not only survived but conquered the crucible we were entering.

Gunther radiated conviction. He knew debate, lived it, and believed in its craft with a disciple's fervor. Our school had no coaches experienced in Policy, so when he saw our curiosity and potential, he took us under his wing. He taught us debate theory, revealed the custom software he had built to churn evidence faster, and showed us what true debate looked like by standing against us himself. Policy is a two-person event. Gunther faced us alone. His speech was surgical, cutting straight to the marrow of our arguments. Severing the head clean from the body. Even more devastating: he never once touched his five minutes of prep time. While dismantling us, he scribbled notes on our technique with a kind of effortless grace. I can still recall the chills of that first duel with him. We had glimpsed greatness embodied. We wanted to be Gunther. We needed to be.

SAD consumed us. Every waking hour bent toward the hunt: scouring archives and databases for the perfect citation, rehearsing attacks until our voices rasped raw. By senior year, we had sharpened ourselves into something formidable. At state we placed fourth, higher than anyone from our school had in thirty-five years. We wore suits, fedoras, aviator sunglasses. Even now, veterans of that circuit remember us, not just for the record, but for the 'Blues Brothers' spectacle. James remains one of my dearest friends.



James Hadly driving The Mafia to high school graduation in his van. Visible is Evan Andrews (top left), Cooper McKee (top right), Owen Storrer (back seat), Bridger Schutte (Front seat). Ryan Tomich is straddling the gear shift in the front middle with his graduation speech clearly visible on the dash.

Engine Epoch

As I gravitated closer to academic endeavors, I felt a pull. A particle suspended between twin magnets: discipline tugging one way, belonging the other. Ever since I began to dream of making something of myself out East, solitude and society had started to lock horns. Each evening, the weight of unworked equations beckoned from my desk, while outside my window, laughter rippled through the night air, daring me to abandon duty. When I caved, I slipped into the passenger seat of a friend's car, surrendering to the empty roads of a small town where the only pastime was to drive nowhere in particular. And yet, even in those nocturnal wanderings, science shadowed me. Late on a cold winter night, eight of us piled into James's minivan. I felt the suspension sag as I sprawled across the situated passengers. Despite the negative temperatures and the van's lack of heating, eight bodies packed together produced a suffocating humidity. As we drove our usual loop, I pulled a card from my wallet, scraped the condensation from the

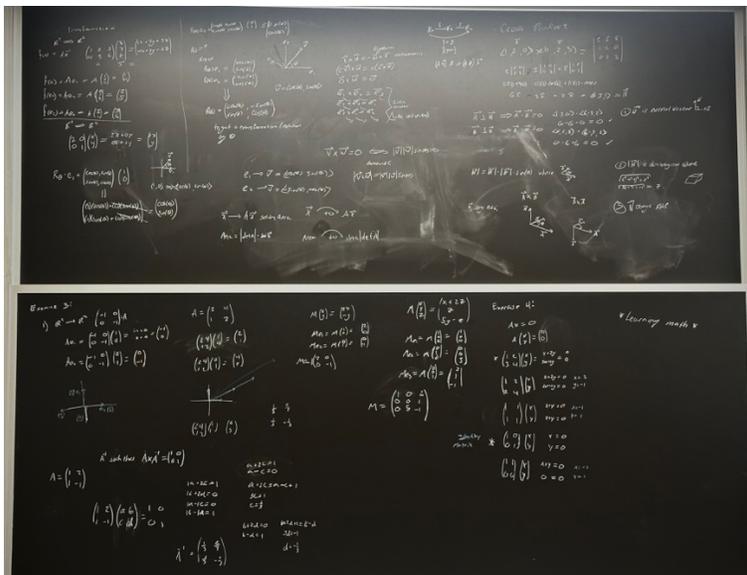
inside of the window, and placed the snow-like glob onto my forehead. An excited talk emerged as I began my lecture on how the particles of the warm air, already full of moisture, slowed and changed from gas to liquid, and eventually solid ice against the cold window. By then the frost had covered it again, giving me a chalkboard of ice to diagram it.

The breath of vision filled me, an almost combustible sense of who I wanted to be, followed by an aspirational flood of tasks and expectations. Soon the chamber narrowed, academic demands pressing in like pistons from every side. Intellectual claustrophobia grew and as the pressure peaked, my friends would tap at the door. The spark to ignition. I yielded into bursts of social energy: late-night drives, laughter, the small rituals of belonging. A fire of companionship roared, expelling me far from the tidy rows of equations. And then, silence. The engine cycle ended with me alone again at my desk, a heavy guilt settled over as I was reminded of the yawning gap between the scholar I aspired to be and the student I was. The four-stroke engine cycled: vision, pressure, ignition, and aftermath.

Sophomore year, just as the engine was warming up, came a screeching halt. I met a girl. Lauren. We had crossed paths in honors classes, and in a particularly reckless burst of ignition, I asked her out. Lauren was no-nonsense; deliberate. I admired her clarity, decisiveness, and her unyielding defense of conviction. When the rare chance our views collided, my mother would remind me that “educated women come with opinions,” and that the two were forever intertwined. Soon we fused our circles into what we proudly called *The Mafia*. From the outside, it must have looked almost curated: varsity athletes and captains from five different sports, club officers, performers, climbers, skiers, even a contestant on *American Ninja Warrior*. These were the top academic minds of our year, making up an overwhelming majority of every honors class. The very coordination of The Mafia was itself a miracle. Membership flowed, but there were

times when we spent nearly every day together. Still, time takes its toll. Some tried dating one another. Others grew restless, dissatisfied. Our goals diverged, and with them, our time and effort. Yet for all its imperfections, The Mafia became the defining feature of my high school years. Occasionally, my own engine would stall, stuck in compression as I fought to resist distraction in pursuit of a dream. It was then I discovered caffeine. It kept the pistons firing, my engine roaring at high revs, if only for a while.

This cycle was hard on those close to me, often straining the thin thread that kept me central to the group. All too many times I put them secondary to whatever academic pursuit was most pressing. Friends and relationships like these become locational. Years of references that, when questioned, are met with a 'you had to be there'. Often, I wasn't there, and a line was drawn. In later high school that line thickened, and a sense of unfamiliarity grew within my own inner circle. When it came time to leave for college, we had one last get together. Despite the occasional off-hand messages, I have not spoken to some of them since.



Ryan's chalk board scribbles from a calculus course

Coarse Chalk

When I got into MIT, there was never a question of where I would go. My Harvard acceptance came days later; I declined within the hour. My dad still jokes about that moment. My image of MIT had been shaped by *Genius*, Richard Feynman's biography. It tells of being one of only two freshmen in an advanced physics class, wavering between mathematics and electrical engineering. Even the future Nobel laureate, surrounded by Doc Edgerton's "shop men," whose hands spoke a language of precision and flame, felt out of place. MIT is a crucible where even the absolute best get humbled. A place where even the strongest metals are tested by pressure and heat.

MIT made alloys.

Late one evening of my freshman fall, I slipped into a dark, empty lecture hall. As the stage lights flickered on, I unsheathed my chalk. Diving into the derivations of single-variable calculus, I felt a faint echo of the colored tiles from my childhood tutoring. The same feeling of

academic isolation. I don't know whether to feel pride or shame in beginning MIT from its most rudimentary courses, offered more as a courtesy than a challenge. I could blame my public schooling, but that's only an explanation, not an excuse.

The chalk snapped in my hand. One half struck the board, the other shattered across the ground. In a rush of frustration, I smeared the failed proof, blurring it into a gray cloud. As my flick of anger subsided, I brushed up the pieces, the small shards utterly useless. An ego broken. I sat there for a long while, letting my thoughts cloud like the board. The remaining stub, still between my fingers, began to slip along with my consciousness, only to be caught at the last moment. My finger slid past the fracture, now serrated. Shorter, but capable of cutting cleanly through the darkness of the board. Broken, yes, but also refined.

Damaged, but tempered.

A pity, I thought, to let such a fragment go to waste. For perhaps the break was not an accident, but the price of becoming sharper. Clawing back to consciousness, pulled almost by the will of the chalk, I raised it once more and began to write.

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Photos from the authors personal collection and personal communication with Maureen and John Tomich, Sep 21, 2025.