

The Flying Machine

They had made their way a few miles down the lake. Tim led the group in a kayak. Tommy and Casper shared a canoe and were close behind. Tommy energetically flailed her paddle around, sharply contrasting with Casper's slow, deliberate strokes.

"Seesh, we're gonna get there eventually," said Casper under his breath. Some ways behind them, Trama paddled with Lucy. Brian paddled with Mira. There was another mile of lake in front of Tim's ragtag fleet. At the far end of that mile stood the Sig residence.

Tommy, Tim, and Casper had stopped. Trama was studying the Sig's house when he caught up to them. From here, the Sig house was closer than the house on stilts. Trama didn't notice the cove that they had approached until he saw Casper's wide eyed stare.

The cove was bordered by a cliff. The cliff was three times Trama's height. It was covered in vines and brambles. Above the cliff stood a grove of massive redwood trees. One redwood was far larger than the rest. This redwood stood right on the edge of the lake. Its trunk towered upwards from the cliff, obscuring the late afternoon sunlight. Directly below the freakish tree was an opening in the cliff. The redwood's roots stretched down the cliff and into the lake, forming an arch around the opening. Through the arch Trama could see firelight glinting off water. This fiery canal led to Yellow Lake's library.



Tim paddled his kayak through the opening. The others hesitantly followed. Even Tommy slowed her paddling. Her exuberance was tempered by cautious curiosity.

Trama couldn't make heads or tails of the peculiar place they were entering. Bracketed lamps with oil soaked wicks lit up a stone wall. Far above them some glancing rays fell through a small window. There was only enough light to tell that the space was cavernous.

Tim's kayak disappeared into shadow. The group waited hesitantly as they listened to Tim's footsteps echo off cobblestone. Then a glowing trail of light shot upwards, revealing their surroundings. The hollow insides of a redwood rose almost endlessly above them. The redwood was as wide as a school bus. A metal ramp spiraled its way up the tree's innards. Armchairs, end tables, and bookshelves were sporadically placed along the ramp.

"So," said Tim, breaking the reverent silence. "The lightswitch is over here." Tim was standing next to a modest wooden pedestal about a dozen feet from Trama. One of Tim's hands rested on a red lever. Tim's other hand held a bucket. As Tim spoke, he poured a shimmering liquid into the bucket. He hooked the bucket onto a metal chain. The chain was connected to a pulley. The pulley ran parallel to a phosphorescent glass tube. This tube ran straight up, casting light

as high as Trama could see.

“You pull this lever to turn the lights on. To turn the lights off, hook a bucket to the chain and work the pulley. Hand over hand, like this.” By some ingenuity of the pulley’s design, the bucket quickly soared upwards and out of sight.

“Then the bucket empties into a trough and extinguishes the tube light,” said Tim. His words were accompanied by a trickling sound. As liquid splashed downwards, light rippled and then dissipated from the tube. In the dying light a silvery substance splashed out the bottom of the tube and onto Tim’s feet. Tim disappeared back into shadows.

“Damn it,” said Tim’s voice. “I forgot to recollect the liquid. I was supposed to put another bucket at the end of the tube. Whatever this silvery stuff is, its expensive.” Tim sighed. “The rest of our silvery liquid is back at the house on stilts, and I’m not supposed to leave the lights on so... I guess that concludes visit to the library.”

Tim continued apologetically, “all you really needed to know was how to work the lights. Other than that there’s just a bunch of books. Oh, also, the Sigs have access to the library Tuesday, Thursday, and Sunday. You can come here Monday, Wednesday, and Friday.”

“If we want to come, where do we get the silvery liquid?” asked Brian.

“House rules: you have to check the liquid out from someone responsible. You can borrow it from me anytime,” said Tim. For the whole canoe trip back, Tim didn’t say another word.

During Trama’s first week at the house on stilts, he was awash in a sea of new places and people. Each day, Tim would take the students somewhere they hadn’t been before. Some days, Tim met with them in the classroom and discussed how things were run. They learned how chores were doled out. They learned how to request materials, tools, and guest lecturers. Tim’s sessions didn’t fill the days. There was lots of unstructured time. Trama spent some of his downtime reflecting on what he had seen and heard. Most of his downtime was spent formulating a plan. To make something that flew, he needed knowledge and he needed a workshop.

On their first Saturday night at Yellow Lake, Benny invited Trama to check out a treehouse he had built, high up in an Oak. Tommy invited herself and tagged along. The Oak was tiny compared to the library, but it was a very broad tree. Benny had created winding walkways through its branches.

Benny brought an oversized thermos full of hot mead. For some time, the three students tipsily traipsed down walkways, throwing the thermos back and forth. At one point Trama overthrew the thermos. Tommy leapt backwards and caught it with both hands. Then she disappeared behind a walkway. Trama's heart fell. It looked as if Tommy had fell from the tree.

Momentarily it became obvious that Tommy had caught herself. She had acrobatically wrapped her legs around a tree branch. Upside down, Tommy poured the remaining mead from the thermos into her mouth. Benny's poor impression of Tommy disappeared along with the mead.

Later that night, they saw a distant bonfire burning on the Sig's side of the lake. They could hear the muffled echo of Sig voices. Benny amused himself by yelling profanities in the Sig's direction. Tommy and Trama joined in. It was doubtful that any of them were heard.

When they woke in the tree the next morning, Benny left to attend his brewery. Tommy asked if she could join him and was enthusiastically received. Trama returned to the house on stilts and found the other students sorting through some supplies. There was no task left for Trama, so he decided to explore his new home. Trama climbed the spiral staircase leading to his house. He was slightly disturbed to see his dirty clothes through the window in his room's floor.

Each level of the house on stilts was the size of an average living room. Stacked on top of each other, these simple spaces formed a very complex building. The house's first story had a small landing with entrances to Tim and Trama's rooms, and a ladder leading to the second story. The second story had a kitchen, bathroom, and another spiral staircase. That staircase entirely skipped over the third story, leading directly to the fourth.

It was the type of house you could live in for a long time without really understanding. An hour passed before Trama reached the uppermost story, and he was pretty sure that he had skipped some floors. He was about a dozen stories up. The top floor was a living room occupied by a pool table, fluffy pink couches, and very little else.

Trama looked out one of his house's small square windows at Yellow Lake. He was filled with the weary, satisfied type of exhaustion that comes from spending time in interesting ways. The couches looked enticing. Trama lay down and was on the verge of taking a nap. He spotted a trapdoor in the ceiling. Engraved on the trapdoor were the words *Joe's Observatory*.

After staring at this trapdoor for a few minutes, Trama noticed that the *O* in Observatory was a metal ring. Trama jumped up and grabbed at the ring. The trapdoor fell open and a sliding ladder shot past him, nearly missing his head. The ladder's bottom rung tore into a fluffy pink couch. Trama climbed.

Joe's observatory was filled with cobwebs. On one side of the room, a steep set of astute metal stairs led to a door. The word *Roof* was painted on the door in bold red lettering. The other three sides of the room were bordered with shelves, tables, and a chimney. There were a few pieces of rusty, unidentifiable scientific equipment and some moth eaten textbooks.

The center of the room was the really interesting part. A raised, circular platform stood next to a stepladder. The platform may have been meant for a massive telescope. There was no telescope. The platform stood on a single column. The column had all sorts of gears and meshing attached to it. It appeared to be meant to move up and down. In the roof above the platform was an iris shaped, multifaceted metal oculus. Trama could imagine a telescope rising up and out of the observatory for stargazing. He could also imagine a flying machine rising up and out of the observatory for take-off. Trama had found his workshop.

Some Yellow Lake graduate had done incredible things in that attic. Trama planned on doing incredible things there too. He went back to his room and spent the rest of the day making a to-do list. It is impossible for one person to make a flying machine. This is particularly true for someone lacking years of study. Trama was blissfully unaware of that fact. He scoured a library reference catalog. By Sunday night Trama had a list of potentially useful books and tools.

Meanwhile, the incredible things Tommy was dreaming of were merely incredibly tasty. Tommy was apprenticed to Benny. If there had initially been some distance between them, it now only drew the two closer. Tommy had only spent one day in Benny's brewery, but Benny was confident in his new disciple. Disciple is the appropriate word. Benny's impromptu speech their first night at Yellow Lake had stuck with Tommy. Tommy was more devoted to Benny's teachings than most monks are to their religion.

Tommy and Trama weren't the only ones keeping themselves occupied. Before a week had passed, each of the six new students had found some task and attacked it with ferocious intensity. Two years lay ahead of them like a blank slate. Yellow Lake was an undirected and expansive place. De-

spite or perhaps because of this, each student formed their own rigid schedule. In the evenings the twelve students cooked and ate dinner together. By the end of dinner they had each discussed what they had done that day. No one wanted to have accomplished nothing.

On Trama's first Monday at Yellow Lake, he visited the library. Trama brought his list of books and an old glass bottle full of silvery liquid. Finding books wasn't very much trouble. The library was comprehensive, alphabetized by topic, and well organized. Getting to the books was a little tougher. Trama spent twenty minutes trekking up the library's long spiraling ramp. Trama was high up in the redwood before he reached a bookshelf labelled *Flight*. The library's cobblestone floor was a distant shadow.

If Trama had feared heights, he would have been very uncomfortable. Trama wasn't afraid of heights. He found himself cozily ensconced in an armchair. Trama sorted through books, making notes on their contents and checkmarks on his list. Some of the most interesting books were useless to him. Trama spent half an hour paging through *Catapults, Wings, and Silly Things* before tearing himself away from it.

Many of the interesting books were also useful. One book was called *Paragliding, Hang Gliding, and Just Plain Gliding*. It was filled with lists, sketches, and blueprints. It was just what Trama needed.

Trama didn't know how to make things out of metal. Building an airplane was out of the question. Trama wanted a flying machine and he wanted to strap himself into it. As Trama read through *Just Plain Gliding*, the book's ideas mixed with his own thoughts. Trama only vaguely understood the task which stood before him. It didn't matter. *Just Plain Gliding* clarified and focused the goal which Trama had set for himself. His flying machine would be a glider.

The blueprints in *Just Plain Gliding* filled Trama's head with images of his flying machine. But Trama still needed to understand some basic concepts. Trama consulted his list. One book, *Principles of Flight*, had no checkmark next to it. Trama needed to understand flight. The missing book was a logical starting point. Trama rechecked the *Flight* bookshelf twice, without success. *Principles of Flight* was nowhere to be found.

Trama gave up. As he walked down the spiral ramp, he spotted a stack of books sitting on an endtable. Trama looked closer. On top of the stack was an article titled *The Brewer's Garden*. Trama laughed to himself. He was remembering the story Benny and Jose had told about the egotistical

Sig brewer.

Driven by curiosity, Trama looked through the stack of books. Beneath *The Brewer's Garden* was a strange assortment of titles. Someone had been reading *Flying Further: Making a Better Arrow, Improvised Weaponry: Crossbows on the Go, A Sailor's Guide to Bombardment, and The Nautical Side of Aeronautics*. Then, at the very bottom of the pile, Trama found *Principles of Flight*.

Unexpectedly, his trip to the library had become a complete success. As Trama examined *Principles of Flight*, the prospect of building a flying machine began to seem very real. Trama was excited and a little giddy. On a whim, Trama wrote a note and left it on the stack of books.

Dear Sig Brewer,

Thanks for the tasty beer. I heard that you are interested in medieval weaponry. You might enjoy reading Catapults, Wings, and Silly Things.

*Best,
Trama*

Everything I've discussed thus far happened during Trama's first week at Yellow Lake. That week created a solid foundation. That foundation supported a satisfying routine which filled months.

Trama had always done well in school. Before Yellow Lake, math and science had stood on their own. Equations had been self-contained puzzles. Mass and acceleration had been interesting but abstract concepts.

Now Trama used math and science as well crafted tools. They sat on a pad of paper next to his hammer and chisel. Trama spent long days moving back and forth between band saws and table saws. He dreamt about the different ways that wood, canvas, and piano wire might fit together. He woke in the middle of the night and wrote cryptic notes to himself-

'wingflap 2 may be better served with foot steering mechanism (less friction).'

Trama was obsessed with flying. His old interests became distant things. Weariness is a habit that is often brought on by repetition. Trama

avoided the habit of weariness. His goal had filled him with a single-mindedness which would bear no distraction. Yellow Lake facilitated this. There were no paperwork or deadlines. Trama was responsible only to his own expectations.

Most people have a public world and a private world. Trama's private world became cavernous. His private world was full of movement. Trama's private world overcame the challenges it faced one step at a time. He gave no thought to the magnitude of his task.

Trama had a public world too. There are many types of love. After only a short time at Yellow Lake, Trama began to feel a warm, familial love towards Tommy and Benny. The three of them ate together and sometimes went canoeing. The time that Trama passed with them was always memorable in the best way. When they spent afternoons together, time flew by. Trama seldom remembered the finer details of those afternoons. Instead, his memories were like pastel paintings. On close examination they had little substance, but they were evocative and pleasant. When his mind tired of thinking about gliders (which was rare), Trama would pick through the memory of his last outing with Benny and Tommy. They were good friends and worthwhile people.

There is a place where Yellow Lake's foothills jut out into its fields. This hillside stretches almost as far as the lake. At the base of this hill lies the redwood grove and Yellow Lake's library. Hidden in the jutting foothill are a number of small cliffs and caves. Far above the redwoods, Benny's brewery lay in the cool recess of one these caves.

One evening Benny and Tommy convinced Trama to make the trek to their brewery.

"See," said Benny as they approached the cave's entrance, "the temperature is fairly constant, which is huge in terms of reliable fermentation." He opened a round, rough sawn door. Benny revealed his workplace with a sense of pride and showmanship.

There was no clear organizing principle to the brewery, yet nothing seemed out of place. Organized chaos ruled the cave. Looming glass carboys glinted out of different nooks and crannies. Funnels and plastic tubing were strewn about on different tables. In the center of the cave, a huge copper pot was mounted next to something which looked like a blacksmith's forge. A spigot ran from the copper pot to a hole in the ground. Pulleys and ropes were suspended above the hole.

Trama pointed towards the spigot, "What does that do?"

Benny looked at the contraption with a loving smile. "So, once we've cooked up the barley and hops, we just lower a carboy into that hole, ice down the copper to get the wort to temp, and fill 'er up. We also use 'er to siphon for secondary fermentation and whatnot, but thats the gist of it."

A teakettle began to whistle from one of the cave's nooks. Benny made a scrunched up face as he turned to examine a dial in the dim light.

"Too hot for camomile extraction. Perhaps, green. Yes, green!" muttered Benny. Cups and tea bags materialized as Benny paced past cabinets and towards the kettle. Benny returned with three cups of tea and put them down in front of Trama and Tommy. The cups made a dull thud as they hit the table. Upon hearing the sound, Benny looked down with pleased surprise. It was as if the cups were a group of old friends that he had accidentally come across.

"Nothing," said Benny, "beats a skillfully prepared beverage."

Trama thought otherwise. In Trama's opinion, gliders were far more interesting than beverages. Trama found his thoughts wandering towards an interesting concept he had read regarding wing shape. Trama liked thinking about wing shape. He liked Benny too, but his own thoughts were the best company he knew.

One day at the library, something caught Trama's eye. There was a note sitting on a table near the *Flight* bookshelf. Beneath the note was a book. This is what the note said:

Trama,

Thanks for recommending Catapults, Wings, and Silly Things. I did not enjoy the silly things, but found the catapults and wings to be very interesting. The part about catapults helped me design something.

I looked at some plans you left here. You are building a glider with canvas. I recommend The Nautical Side of Aeronautics. That book discusses similarities between sails, rudders, and things that fly. It may be helpful to you.

I am grateful for your recommendation, but I am not your friend.

I now owe you nothing,

Action

Trama read Action's note twice. *The Nautical Side of Aeronautics* was sitting beneath it, already open to the first page. The book began, '*The fluid dynamics of airfoils and sails differ only by degrees.*' Trama could tell that this book would have some unusual things to say. By the time Trama had finished reading it, he had some unusual ideas.

While eating breakfast, Trama would think about how sails catch the wind. Trama spent his weeks riveting canvas to wood and testing the strength of joinery. Trama spent his weekends sketching things on paper. He compared and combined different blueprints. While falling asleep, Trama pictured rudders and propellers. Trama's mind was almost completely filled with thoughts of his flying machine.

Besides the time he spent with Benny and Tommy, Trama allowed himself one other distraction. On Thursdays, some lecturer would always discuss an interesting topic. Trama enjoyed learning about obscure poets and the structure of snowflakes. Each week was fascinating in a different way. Despite the variety, Sushi Man's lectures stood out from the rest. The most interesting part of a Sushi Man lecture was usually unrelated to sushi.

The students of the house on stilts gathered for Sushi Man's third lecture. Sushi Man walked into their classroom juggling pineapple, oranges, and apples.

"Today, we think with our hands," said Sushi Man.

The students stood around a table. They took turns pressing little bits of fruit into sticky clumps of rice. Sushi Man gave feedback.

"No, Tim. Feel more carefully how fruit and rice meet," said Sushi Man. Tim threw his hands up in frustration.

"You seemed happy with Brian and Benny's sushis. They each did totally different things. I really don't understand this," said Tim.

Sushi Man said, "There are an infinite number of ways to make sushi."

"There's also an infinite number of ways to waste time," Tim muttered quietly.

Sushi Man's head shot up. His hearing was very good.

"Sarcasm is like a bad pineapple," said Sushi Man. Sushi Man pointed the tip of his knife at a pineapple.

"Bad pineapple. Looks ok sitting on a table. But-"

Sushi Man expertly quartered the pineapple with a flash of his knife. The fruit fell open onto the table. Its flesh was soggy and dark. “Nobody wants bad pineapple,” said Sushi Man. “Now the secret to judging a pineapple’s ripeness is its smell.” As Sushi Man continued with his lesson, Tim quietly left the room.

After the lecture had ended, Trama saw Tim sitting on the roof of the house on stilts. Tim was looking out over the valley. Trama joined him.

“I never figured it out, Why’d they put this house on stilts?” said Trama as he sat down next to Tim.

“Well, the story goes that the idea came to some architect in a dream. The architect wanted this college to be a place for dreamers, so they built what he dreamed.”

Tim scooted forward, dangling his legs off the edge of the roof. “I’m pretty sure that’s nonsense though. Our government wanted our college to look cooler than the Sig’s college. They probably put our house on stilts so that the Sigs could see it from across the lake.

“I’m glad they put it on stilts though. This is a great view,” said Trama.

Tim agreed. He stroked his beard thoughtfully. “I love this roof. I like to sit here and think about how the different parts of Yellow Lake fit together.”

“Parts?” asked Trama.

“Well, the places and things here relate to each other. They all make sense.”

They sat in silence for some time.

“Except for Sushi Man. And those goats,” Tim said, pointing out at a herd of goats. “Everything here has a purpose, except for those goats. I’m not sure why they’re here.”

Storytellers have a tendency to simplify. I’ve tried to mention goats as little as possible while telling this story. To that end, I must admit that the contents of this chapter are not entirely truthful. That winter, there were times when Trama doubted himself. Trama experienced many useless moments. Those moments would have fit poorly into my writing. Simplifying is one way of understanding things. What Trama accomplished during his first year at Yellow Lake was impossible. To understand how he did it, quite a lot of simplification is necessary.

Chunks of ice floated on the lake and then melted. Spring came into

full bloom and then passed. By the time summer had grown deep, Trama had built a flying machine.

The day of Trama's first test flight arrived. The students of the house on stilts watched from the ground. A flying machine rose out of Joe's observatory. Trama, Tommy, and Benny stood on the roof next to the glider. For the first flight, Tim had absolutely forbidden Trama from piloting. Instead, the plan was to strap a keg into the glider where the pilot would have been.

As Tommy and Trama hoisted one of Action's kegs, Benny said, "Be careful with 'er! That's a lot of good beer. Probably weighs as much as Trama."

Tommy looked at Benny with a mischievous grin.

"So that means the keg weighs half as much as you," she said playfully. Benny pretended that his feelings were hurt while Trama attached the keg to his glider.

"Step back," said Trama. Tommy and Benny stepped back. Trama pulled a cord, unlocking two small wheels attached to the glider's base. There was a light breeze atop the house on stilts. The breeze was enough to set the glider into motion. Before anyone had time to think, the glider had rolled forward and disappeared over the edge of the house on stilts.

Trama, Tommy, and Benny didn't see the glider dramatically plunge towards the ground. They heard a gasp from the other students. Then they saw the glider's wings billow outwards. As the flying machine caught air, it soared into the distance.

The glider moved rapidly and smoothly. Its canvas wings caught sunlight as they responded to the wind. The glider sloped downwards and outwards. It approached a hillside, flipped, and stuck into a pine tree, nose first. Trama's glider had flown with the ease and lightness of an oak leaf.

Trama was very happy. So were the other students. The excitement around the house on stilts took half an hour to die down. Then the victory gave way to practical concerns. They needed to retrieve the glider. Tommy got out a climbing harness. All the students triumphantly hiked out to the tree where the glider had crash landed. Between Tommy's climbing prowess and Tim's organizational skill, both keg and glider were soon on the ground.

"I think that went as well as I could have hoped," said Trama.

"Sure," said Tim. "But I don't like the idea of you being strapped to that thing just yet. Why don't you test it with a keg a few more times?"

Trama didn't want to test his glider with a keg again. Without any-

one steering, the glider could easily have been destroyed. Benny was also concerned with how kegs were being used.

Benny acted on his concern immediately. Fearing that good beer might go to waste, Benny tapped the keg. The flight had shaken it up. Beer sprayed everywhere. On the walk back home, Benny was soaked and sullen.

That evening, Trama strapped himself into his glider. No one was watching. Trama closed his eyes and reflected on what he knew. Thermal lifts might be marked by swooping birds, dust devils, or cumulus clouds. Air moved upwards around ridgelines. The glider's brake lines, wing flaps, and rudders were all properly positioned. Trama had spent almost a year thinking about how he would steer.

Confidence and initiative are both necessary to complete any worthwhile endeavor. It is hard to have one without the other. Trama had the initiative to build a glider. Along with that initiative came the confidence to fly. Trama's heart was in his throat and his hands shook, but he was ready. Trama pulled a cord. The glider rolled forwards. Trama soared.

Afterwards, Trama never could remember his first takeoff. Some combination of adrenaline and gravitational force blotted that out. He did remember approaching a ridge and shooting upwards towards the clouds. Trama remembered looking downwards at the house on stilts and passing it by.

Building a glider had been hard work. Flying was easy. Air currents that carried an oak leaf half a mile could carry a glider much further. Just as Trama had hoped, Yellow Lake's hillside created an updraft that allowed him to sustain flight.

On his first flight Trama travelled the length of Yellow Lake. He flew over the Sig's house. He could see a figure moving on the Sig's porch and yelled out, "Thanks Action!"

Trama received no response. As he glided back home, he saw something that seemed out of place. A trail of black floated on the lake. This black streak snaked outwards from the library's entrance. Trama didn't know what it was, but it seemed ominous. In the midst of his success, he shivered.