



**Bluebonnet
Learning**
K-5 Reading Language Arts

ENGLISH

PERSONAL NARRATIVES



GRADE 5 UNIT 1 | READER

EDITION 1

Grade 5

Personal Narratives

Reader

Acknowledgement:

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Shinpei Mykawa

Chapter 1: Inspiration at the World's Fair

Introduction: Shinpei Mykawa was born in the Aichi Prefecture in Japan in 1874. He graduated from what was, at the time, Tokyo's leading commercial college. He later became a Japanese naval officer, which was a prestigious title. In 1904, he attended the World's Fair as a member of the Japanese delegation. During his time in the United States, he became interested in beginning a new business venture. A series of events led him to invest in parts of Houston, Texas. Inspired by his vision and dedication to the American dream, each chapter of this personal narrative describes a part of Shinpei's journey, beginning in 1904 as a visitor to America and ending in 1906 as a landowner in the Houston, Texas, area. While not written by him, these tales imagine what life may have been like for Shinpei Mykawa over the years.

*This is my chance to pursue a better life, I thought as I anxiously explored the World's Fair in St. Louis, Missouri, an event that would last over the next seven months. As a Japanese naval officer of the Japanese delegation, I did not plan on having thoughts like this. However, the **exposition** was buzzing with thousands of people from all over the world! Everyone traveled from near and far to **commemorate** the USA's 100th anniversary of the Louisiana Purchase. I soon realized there was more to it for me. Getting the chance to mingle with some of the greatest minds and business leaders was a way to advance my career as a Japanese **entrepreneur** in the land of possibility. I could feel my body tense up like a nervous soldier off to battle as I thought about the importance of this day. I took a deep breath in through my nose and exhaled slowly as I began walking toward a group of distinguished-looking men.*

Before I could take more than three steps, a tall and **poised** man walked toward me with his hand extended. The nerves began to set in again as I clumsily reached toward him to shake his hand. I reminded myself to stay confident and gripped his hand firmly.

“Good evening, sir. My name is Shinpei Mykawa,” I introduced myself. “I am a naval officer from Japan.”

After introducing himself, the gentleman asked, “Have you had the chance to witness the incredible athletes at the Olympics here in St. Louis?”

I had just arrived in America from Japan, so I wasn’t able to attend any of the Olympic events. And I was more concerned with matters of business anyway. However, I knew the 1904 Olympics would be the topic of many conversations here, especially since this was the first time the games were held in the USA. “I have not yet had the pleasure of attending the Olympics,” I quickly responded. “I am here to . . .”

I paused, thinking about how to mention my ideas for agriculture. I was hoping to introduce Japanese rice to America. At the fair, I learned that Texas was flat land, which would be perfect for Japanese rice. Though rice had been cultivated in the Carolinas since the seventeenth century and in Texas since the mid-1800s, I believed Japanese seed rice would transform the American economy.

Before I could continue, the man spotted some acquaintances near the enormous ferris wheel. “Excuse me as I confer with some fellow businessmen. It was a pleasure meeting you, Mr. Mykawa.”

I nodded politely and watched as he joined the group of men. It was then that I noticed the beautifully illuminated fairground buildings. The use of electricity to power the lights, instead of gas or oil, was genius. I had never seen anything like it! This innovation was simply inspiring.

Strolling through the people, I finally came upon four men exchanging ideas about American land. They were **quarreling** about the best locations for their agriculture businesses. I inched closer to their circle. I mustered up enough courage and, during a pause, inserted myself into the discussion, “I hear Texas is a wonderful place for growing crops. Would you concur?”

The men appeared completely caught off guard. They looked at me and then looked back at each other, seeking confirmation that I was someone to be trusted. Finally, one man responded, “Actually, Texas is a fine place for farming, specifically Houston, Texas. Have you been?”

Have I been to Texas? No! But what a phenomenal suggestion! “Please tell me more about Houston and how to get there,” I said.

Shinpei Mykawa

Chapter 2: My Journey to Houston

I was sitting down on a wooden bench at the train station, daydreaming, when I heard the train wheels screech to a halt and the conductor demand, “All aboard!” Porters carefully placed step stools next to each **vestibule** and waited to assist passengers, specifically the women dressed in elaborate garments with fancy luggage. Everyone rushed to form lines at their proper train car, including myself. I was anxious to complete the last leg of my journey to a little town outside of Houston, Texas.

As I waited, I observed the people who were crowded on the station platform. Directly to my left, I saw a little girl around four years old, humming a **jaunty** tune. In the distance, I noticed a young couple holding hands. Behind me was a businessman carrying his brown leather briefcase, seemingly arriving at the station in a rush. None of the people, however, were Japanese.

I then began to wonder if I would come across any other Japanese people while in Houston. A gentleman at the World’s Fair told me that, to his understanding, very few Japanese people lived in the Houston area. However, he recommended I explore a part of town established by Seito Saibrara, who was also a Japanese farmer. It was reassuring to think I might find a piece of home in Houston.

My thoughts were interrupted by a porter requesting to see my ticket. When I boarded the train to Erin Station in Houston, Texas, I had to shuffle sideways through the narrow aisle. I placed my small suitcase overhead on the metal rack and took my seat next to the foggy

window. I watched as everyone else boarded and got settled into their seats for the journey.

Moments later, I felt the engines start, and soon the train rumbled under my feet. I watched as the station drifted slowly into the distance. The train picked up speed, and the town blurred past my eyes. I settled in to rest as I listened to the engine hum a steady tune. I would arrive at Erin Station at noon, ready to find the best land possible for my Japanese seed rice. I closed my eyes and drifted off.

“Last stop, Erin Station!” alerted the conductor. The announcement startled me awake, and I saw Erin Station approaching. My heart raced with excitement. The train finally came to a stop, and everyone started gathering their belongings. We were all anxious to **disembark**.

I took one step off the train. The sticky moisture in the air kissed my face. The sun was stretching its warmth in every direction. *This climate will be perfect for cultivating rice*, I thought to myself. I rushed from the station to search for the perfect area to sow my rice seeds.

I traveled all over the town. Everyone I encountered was **cordial** and welcoming. I had reservations that I would not be accepted here as a Japanese man, but my doubts quickly vanished.

Eventually, I saw a large plot of flat land. It was calling my name. I reached down and grabbed a handful of soil. The soil was moist in the palm of my hand. It was absolutely perfect. Houston, Texas, was indeed an exceptional place for Japanese rice cultivation. I closed my eyes and envisioned the bountiful rice crops growing on this acreage.

As I imagined the seeds growing in the Texas soil, I also began to contemplate how we would distribute our products. It dawned on me that the railways I just traveled on would be a perfect way to distribute our rice throughout the states, and the Houston seaports could help us

to eventually **export** our crops globally. I felt self-assured that this plan of mine was going to work.

I departed this little town and started my journey back to Japan. I could not wait to convince some fellow Japanese men to partake in this venture with me! But first, I would have to share the news with my wife.

Shinpei Mykawa

Chapter 3: My Rice Growing Project

My journey on the ship back home was drawn out and **arduous**. I'm sure my anticipation made it feel even longer than usual. I finally arrived home, and, to my surprise, my wife was already standing just inside the door in the foyer to greet me.

"We're moving to America!" I exclaimed. My wife's expression changed from relief at my return to shock. I took off my shoes, put down my suitcase, and guided my wife to sit down. I explained everything about Texas without taking a single breath, "Just wait until you see the town. It is so quaint and lovely. And the plot of land is **exquisite**! Our crops will flourish, and the people are so welcoming! And—"

I could have gone on for days, but my wife interjected, "I trust you, and I'm ready to see all that America has to offer. But how will we accomplish this on our own?"

"I will convince a group of Japanese men to join this venture and come with us. Together, we will change the American rice industry!" I replied.

My wife said, "I think you may be underestimating the challenges that you may face going to America. Some men may be apprehensive about joining us. You are an excellent farmer and a wonderful businessman, but you may have trouble convincing others to take on this investment."

I responded, "While I was in Houston, all of the locals told me

about a fellow Japanese immigrant named Tsunekichi Okasaki, who has lived in Houston since 1890. He has a restaurant that is thriving. I know we will have as much success as him.” I reassured my wife that I already had some people in mind and that I would not give up until we were landowners in the USA.

A few days passed as I gathered all of my thoughts. I made sure every detail of my investment plan was covered. *Knock, knock, knock*. It was time. I opened the door, and four of my **colleagues** bowed to greet me. We immediately got straight down to business.

“Thank you for meeting with me today, gentlemen,” I began. “I wanted to present you with an opportunity in America.” In the men’s eyes I could see an equal mix of caution and curiosity. One of them, Kasoku Sawada, said, “We are eager to hear.”

I continued on with my explanation. “As you know, I recently returned from Houston, Texas. While there, I discovered a plot of land, 520 acres to be exact, that is available to purchase. With your help, I’d like to invest in this land and cultivate Japanese rice.”

Before I could mention more, Kasoku Sawada interrupted, “This all sounds like a wonderful opportunity, but what makes you think Japanese rice will be successful in America? I thought Japanese seed could not grow there.”

“The Texas climate and soil are perfect for growing it,” I answered. “Not many rice farmers are investing in Texas plots anymore, even though the land is cheap. In prior years, Texas rice farmers failed to refine the strand of rice common to America. The rice was crumbling in the milling process, and farmers were losing half of their crops. I know that Japanese rice seeds can withstand the milling process because of its resiliency. Japanese rice seed is not commonly

grown in American soil, but I am sure we will have pounds upon pounds of crops. We will acquire as many resources as possible and even some mules to pull our wooded seeders. I am ready to seize this opportunity!”

Kasoku Sawada looked at his peers, and they all nodded respectfully in silent agreement. Kasoku said, “No need to explain any more. This sounds like a great business opportunity. We are ready to work hard in America.” With that, it was decided I would purchase the land I had found south of Houston, near Erin Station.

The remainder of the day and into the night, we created our itinerary for our trip to America. As they departed, I whispered to my wife, “Can this be happening? Could my American dream really become a reality?” She said simply, “It is happening because of *you*.”

Shinpei Mykawa

Chapter 4: Becoming a Texas Landowner

Only two years passed since my first visit to America in 1904. I remember timidly entering the World's Fair in St. Louis, Missouri. I came to the fair as a member of the Japanese delegation. I did not intend to start a new business there. Yet, it was over the course of the next seven months that I developed a dream to be a **prosperous** farm owner in Texas. I had very little experience with American land, and I recall it was there that I began to suspect that Texas was indeed a great place for agriculture.

In 1906, I returned to Texas with four colleagues, ready to become American farmers and entrepreneurs. I stepped foot off the train at Erin Station for the second time and breathed a sigh of relief. "Welcome to Texas!" I exclaimed to my traveling party. Each member of the group looked around wide-eyed at our surroundings, studying every inch of the nearby land. Though I missed my wife, who planned to join us soon, I couldn't imagine a better moment.

I guided everyone to the plot of land that would soon be ours. I informed my **counterparts** that this area had previously been developed by fellow Japanese investor Seito Saibara and the Santa Fe Railroad Company. We walked around and discussed the plans we had **formulated** in Japan. "These are the bushes that must be removed to maximize our space, and over to your left is where we will plant our first row of seeds," I reminded them while pointing out each area. "There's a lot of work to be done," replied Kasoku, "but the land looks very promising."

After walking the remainder of the property, I went off to sign the deal for the 520 acres. I had zero reservations about this land investment and beamed with pride as the title company handed over the deed. I could not wait to begin work the very next day.

We all gathered on the fields before the sun peeked over the horizon. I told my fellow farmers, “This new undertaking will be tiresome and **grueling**, but in the end, we will be prosperous!” I assigned everyone their tasks, and we all began our manual labor for the day. Some of the farmers used mules and plows to clear out large plants, trees, and bushes. I, along with the others, got down on our knees, with the sun beating down on our backs, to pull out each and every weed. We dug our fingers deep into the dirt to ensure that all of the roots were removed. The weeds covered an expansive amount of the land, so this **menial** task took many, many days, which caused our hands to be worn and **calloused**. Even though the days were long and challenging, we always woke up eager to get back to work. We were motivated by the potential for prosperity.

Over the course of the first few weeks, community members would often stop by, eager to find out what we were planting. I described our plans to transform the land into a prosperous rice farm. Some of our neighbors, including other Japanese farmers, shared their doubts, but I always reassured them. I told them, “One day, the Japanese rice industry will be immensely profitable in America. We will mill and export our rice all around the world, starting from this farm in Texas! I can’t wait for you to see how it will positively impact our wonderful community.”

In a short time, a significant amount of the land was ready to begin planting and growing rice. This first crop represented my dream becoming a reality.

Shinpei Mykawa

Chapter 5: My Success in America

The first few months were nothing short of amazing. Sprouts turned into plants, and plants began to turn into rice crops. The men on the farm worked endlessly and maintained a positive attitude throughout.

One evening, I was sitting in silence at the kitchen table, staring out at the farmland that used to be **riddled** with weeds and overgrown plants. I was creating lists in my head about the numerous tasks that needed to be accomplished in order to harvest a surplus of rice. I thought about when I spoke to my friend Kasoku, who, in the course of our conversation, asked, “It’s a beautiful thing, isn’t it?” I paused and asked, “What are you referring to?” He softly replied, “Watching our dreams come true. It’s simply beautiful.” After that, I stopped making my lists and looked out at the farmland in appreciation for the rest of the night.

A Note: Year 1940

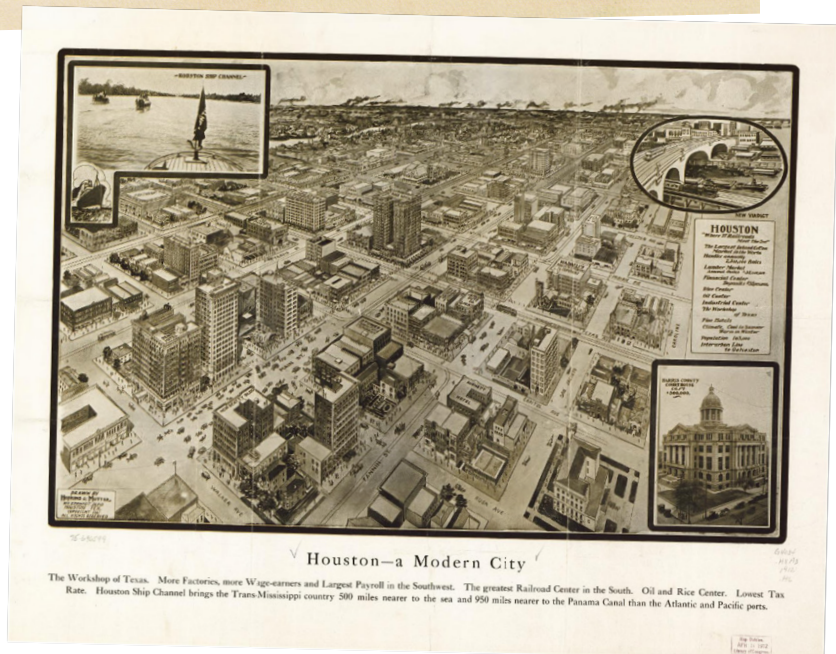
It is with great sadness that a group of us, who worked alongside Mr. Mykawa, write this note. In April of 1906, after working hours upon hours to make his dreams come true, Mr. Mykawa died unexpectedly while working on his land. Even though he passed away before fully realizing his dreams, we all tried to persevere in remembrance of him.



Shinpei’s tombstone proudly stands in Hollywood Cemetery in Houston.

Unfortunately, his farmland was never successful. Many individuals commented to us that Shinpei's investment was a failure because he was unable to produce ample crops. Those of us who worked alongside Mr. Mykawa were not of the same opinion.

Even though his farm was never profitable, rice farmers in Houston began to have great success after Mr. Mykawa's journey! Within the first three years, rice farmers in Houston **harvested** an average of thirty-four barrels an acre. This was nearly double the average in the United States at this time; the average harvest was eighteen barrels of rice per acre. The nearby and expansive railway system was a huge asset to rice farmers in the Houston area because it provided them with an efficient method for transporting all of their goods. The growth of rice culture in Houston has its roots in the sound financial practices of Shinpei Mykawa. He **illuminated** Houston's potential beyond cotton and corn crops.



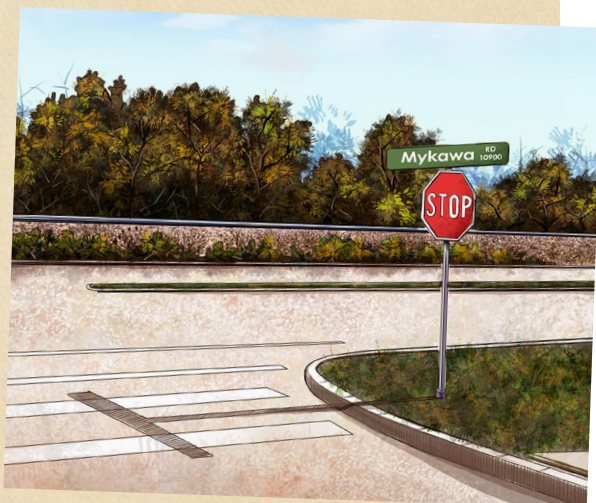
This map shows how Houston has developed into a diverse community, influenced in part by Shinpei and other Japanese immigrants.

Today, we received word that the community renamed Erin Station to Mykawa Station in Mr. Mykawa's honor. Many of us had chills when we were told this wonderful news.

Erin Station was renamed to Mykawa Station. Many Japanese immigrants came to celebrate his legacy and their future as Texans.

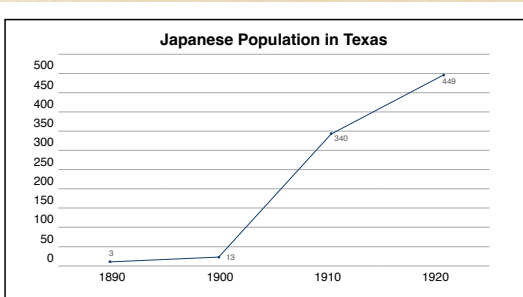


It was explained to us that Mr. Mykawa's impact extended further than U.S. economics. He led his business with passion and showed sincerity toward his community members. We know this has been an important symbol for Japanese immigrants as well. They now see a Japanese name on the map and seek to settle in Houston, Texas, too.

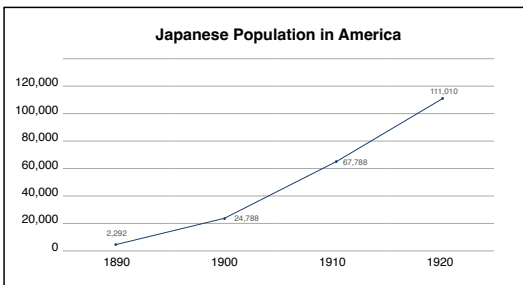


Mykawa Road was named after Shinpei and is still located across from the new Mykawa Station.

They are helping to grow the area into a rich and diverse community! People are starting to refer to the area as a melting pot of different cultures. As a result, the people of the Houston community are now able to experience food and traditions from across the world. On top of that, the diverse economic **ingenuity** is already helping the area to prosper. We wish Mr. Mykawa could see how so many different people are coming together to live in this city.



Over the years, the amount of immigrants from Japan to Texas and America has dramatically increased. Shinpei and his legacy encouraged many people to move to Texas.



We have included some photos to help inspire others to work hard to pursue their dreams, just as Shinpei Mykawa sought to achieve his.

Mykawa School was named in Shinpei's memory.



Bruce McCandless II: “Stepping Into Space”

Part One

On February 7, 1984, I woke up 160 miles above the Earth. I was an astronaut on the space shuttle *Challenger*, and I was about to do what no person had ever done before. I was going to step out of the shuttle, disconnect the tether that held me to my spaceship, and use a **jetpack** to fly in space. It was a risky mission. And I knew the world would be watching.

As a kid, I loved to read comic strips in the newspapers about a hero named Buck Rogers. Comic strips back then were as popular as the video games and superhero movies of today. Buck was a brave and good-hearted World War I veteran who was knocked out by gas fumes in a mine. He fell into a deep sleep. When he woke up, he found that he was five hundred years in the future. Undaunted by the changes he saw around him, Buck fought bullies and villains on Earth and in outer space with the aid of a new type of device, a sort of rocket he wore on his back—basically, a “jetpack.” The jetpack enabled Buck to fly. He could travel great distances very quickly to help those who needed him. A generation of American boys and girls, including me, grew up dreaming about Buck Rogers and his jetpack.

My fascination with heroes and flying was a major reason why I decided, at the age of ten, that I wanted to go into space. I figured that spaceships would need pilots, so I learned how to fly jet airplanes after I graduated from the United States Naval Academy. I flew Navy fighter planes like the F-4 Phantom off the decks of aircraft carriers in

the early 1960s. This was a dangerous job. Once, in 1961, my airplane caught fire in mid-air. I had to eject from the **cockpit** and parachute to safety in the Mediterranean Sea.

I joined the National Aeronautics and Space Administration (NASA) as an astronaut in 1966. I moved to Houston, which is home to the Johnson Space Center, where NASA's space explorers live and train. Soon afterward, I was assigned to work on an amazing project. NASA was building a real jetpack! Astronauts had proven that they could exit their spaceship and survive in space, where there is no air to breathe. But so far, they had all been **tethered**, or "tied," to their ship. Tethers are great for safety, but they have drawbacks. These safety lines can get tangled. They also limit what an astronaut can do and where he or she can go.

NASA wanted us astronauts to be able to move around freely outside our spaceship. If we were mobile, and not tied to the ship, we could repair other vessels, retrieve malfunctioning satellites, and maybe even rescue stranded space travelers. While NASA considered several options, including a pair of "rocket boots," the jetpack seemed like the best choice for enabling astronauts to do important work in space.

NASA's new jetpack used nitrogen gas as a fuel. The nitrogen was stored in the jetpack at very high pressure. By opening one or more valves, or nozzles, on the jetpack, an astronaut could expel the nitrogen gas. When the gas shot out in one direction, the astronaut would move in the other. The principle is the same as letting the air out of a balloon. Let the air out one way, and the balloon flies the other way as it empties. This is how rockets work as well. When a rocket is launched, fuel and oxygen are mixed together and set on fire, or "ignited." The exhaust gases from this combustion are directed downward at a

very high speed out of nozzles at the base of the rocket. The rocket, meanwhile, moves in the opposite direction: Up! This is an illustration of **Newton's Third Law of Motion**, which states that for every action in nature, there is an equal and opposite reaction.

Starting in 1966 and continuing into the early 1980s, I and a group of engineers at NASA devoted thousands of hours to designing and testing the new jetpack, which was called the “Manned **Maneuvering Unit**” (MMU). Much of the testing involved **computer-generated simulations**. But I did other tests underwater, where I could move in a way that felt like movement in space.

There were times during those years of testing when I was tempted to give up. While my friends journeyed to the Moon and circled the Earth on a space station called Skylab, I sometimes wondered if I would ever get off the planet. But I never quit working on the jetpack. Finally, in 1983, the machine was ready to fly. NASA announced that I would test the MMU in space on the tenth shuttle mission, STS-41B, in February of 1984. I swallowed hard when I read the news. For a moment, I had trouble speaking. Something I'd wanted to do since I was a kid was finally about to happen.

*

I was excited to learn who would be making the trip into space with me. STS-41B had a great crew. Commander Vance Brand was an easygoing former Marine test pilot who had flown in space twice already. Pilot Robert L. “Hoot” Gibson was a Naval Academy graduate and one of NASA's best fliers. With these two in the cockpit, I knew I would be in good hands.

There were three “mission specialists”—astronauts who were trained to perform a specific mission—on the flight as well. Bob

Stewart was scheduled to test the MMU after me. Bob was a soft-spoken combat veteran who won the Distinguished Flying Cross for his service in the Army during the Vietnam War. He later became a test pilot and helped to develop the Black Hawk helicopter. Dr. Ron McNair was a brainy and very friendly physicist from South Carolina. His area of expertise was lasers. Just thirty-three years old, he held a black belt in karate and was an accomplished jazz saxophonist as well. It seemed like Ron could do anything he set his mind to.

Finally, there was me, Bruce McCandless II. Some people thought I was too old to be flying in space at the age of 46. True, my dark hair had gone wispy and white. In fact, I was described by one journalist as “almost grandfatherly.” But I was still a kid inside. And I was still eager to fly.

*

Our mission left earth at 7 a.m. on February 3, 1984. The space shuttle *Challenger* climbed into the sky atop the seven million pounds of **thrust** generated by three main engines and two rocket boosters. I occupied Seat 5, alone on *Challenger’s* mid-deck, secured in place by a lap belt and shoulder straps. I sat with my back to the ground, looking straight up. As the shuttle shot upward, gaining speed, I was pressed down in my seat. At the same time, it felt as if a big hand was in the middle of my back, giving me a mighty push.

At fifty miles above the planet, I had finally reached space. A smile spread across my face. I’d been waiting for this moment for eighteen years! I didn’t have much time to think about the accomplishment, though. Shortly afterward, the spacecraft reached a speed of 17,500 miles per hour. The shuttle’s maneuvering system thrusters gave us another nudge of power, and *Challenger* entered Earth’s orbit. Anything

not fastened down was now *floating*, **liberated** by the weightlessness of free fall.

The entire trip into space only took a few minutes. Only Commander Brand had experienced the feeling of weightlessness before, so the rest of us spent some time getting used to it as we floated around inside the shuttle. We grinned at each other's awkwardness and **glee**. We unpacked and tested our gear. And then we got to work.

Bruce McCandless II: “Stepping Into Space”

Part Two

On February 7, Bob Stewart and I ate a quick breakfast. We radioed our **biomedical readings**—body temperature, heart rate, and so on—down to Houston for review. The doctors at Johnson Space Center wanted to make sure that we were healthy before we started our activities. Once the readings were approved by Mission Control, we put on our **pressure suits**. These suits are made of multiple layers of strong, rip-resistant fabric. They provide oxygen to breathe and protect the astronaut from the extreme temperatures of space. A human being exposed to space without the protection of a pressure suit would quickly **perish**. My pressure suit had a horizontal red stripe just above each knee, while Bob’s was plain white. The red stripe was added so that we could be identified in our otherwise identical pressure suits.

Bob and I exited the safety of *Challenger*’s cabin and moved into the shuttle’s payload bay. The payload bay in a spaceship is like the trunk of a car—the place where equipment and objects being transported to **orbit** are stored. The payload bay doors were open to space. We used safety **tethers** at this point, which was all, besides our own hands, that kept us from drifting off into the universe around us.

There were two MMUs on *Challenger*, one mounted on each side of the payload bay. Bob and I checked out the nitrogen gas pressure and battery-power levels on the machines. Right around the time the shuttle passed over Africa, I backed into one of the jetpacks and fastened myself in. I disconnected my tether and gave Bob a thumbs-up. It was time to do what I’d been waiting almost two decades to try.

Upon receiving the okay from Vance Brand, I “launched” myself by leaning forward and lowering my toes. That was all it took. Untethered, I began to move away from the payload bay wall. When Neil Armstrong became the first human being to walk on the moon, he said the words, “That’s one small step for man, one giant leap for mankind.” As I moved away from *Challenger*, I sent a shoutout to my friend Neil with my own statement: “That’s one small step for Neil, but it’s a heckuva leap for me!”

*

Astronauts who have stepped into space have written about the experience as the best part of their journey. Any time an astronaut leaves his or her spaceship, the activity is called an EVA, short for “extra-vehicular activity.” Ed White, the first American to do a **spacewalk**, didn’t want to come back inside. He said that reentering the ship after his EVA was the saddest moment of his life.

I was now experiencing what White had felt. I was overwhelmed by the sight of the Earth in front of me. Our planet is very beautiful. From my position high above, all of its colors—the blue of the seas and the white of the clouds, the browns and greens of the continents—were **vibrant** and clear against the black backdrop of space. My heart raced. My palms sweated. That, I realized, is my *home*—and the home of everyone I’ve ever known and loved. I had to force myself to concentrate on my work.

I started by testing the jetpack’s ability to move and turn. The machine worked fine on Earth, but would it work in space? I moved forward and backward. I dipped left. I dipped right. I even turned a somersault. Everything seemed to be working fine. The MMU was ready to fly away from the shuttle.

Like a ship leaving a harbor, **propelled** by puffs of nitrogen gas, I sailed beyond the payload bay, and there it was, the vast emptiness of outer space. I moved out 150 feet from the shuttle and returned, then traveled out to roughly 320 feet—a little longer than a football field—and came back. I was directly above the planet, with nothing between me and the world as it turned below. If I had fallen from this height, it would have taken a long time to reach the surface. I would have been traveling so fast, I would have burned up when I re-entered Earth's **atmosphere**. I tried to stay calm, but my voice gave me away.

"I'm trying to figure out what sort of landmass we're coming up on," I said. "Looks like Florida. It IS Florida! It's the Cape!"

"It's nice," I continued. "The sun just came into my eyes. It's a little bright, but not a big deal. Going over the Florida Keys...I show myself about 80 feet out from *Challenger*, something like that. I could go faster, but why rush it?"

I only had one issue. My pressure suit was air-conditioned to keep me from overheating, as some astronauts had done on earlier flights when they struggled with their tethers. But the MMU was an amazing machine. I controlled it with knobs at my fingertips, and the jetpack did all the work. It would even hold me perfectly still in space if I wanted it to. But because I didn't have to use my muscles once I was in the MMU, my pressure suit grew chilly. In fact, my teeth were chattering as I moved farther away from the shuttle—a problem I solved by turning the cooling unit off.

Also, while I was looking forward to experiencing the peace and quiet of outer space, I had trouble doing so because of the three separate audio feeds to my earpiece. **Sound waves** don't travel through space because there is no air. But radio waves do, and I had three different people talking to me. Mission Control in Houston wanted to

know how much oxygen I had left, how the battery in the MMU was doing, and what the temperature was. Commander Brand asked me to stay away from the engines and not go under the wings. He wanted me to stay where he could see me. And Bob Stewart wanted to know when it was going to be his turn to fly!

Bruce McCandless II: “Stepping Into Space”

Part Three

When I maneuvered away from my crewmates on the shuttle, Commander Brand observed that I was now the “world’s fastest human being.” Indeed, I was—like the space shuttle—traveling at a speed of roughly 17,500 miles per hour **relative** to the planet. This is much faster than any airplane or car! But it is the **velocity** a spacecraft in orbit has to maintain in order to avoid either soaring off into outer space (if the spacecraft is going too fast) or eventually falling back to Earth (if it is going too slowly).

Commander Brand was watching the flight closer than anyone else that day. I think he was just as nervous as I was. After all, my safety was his responsibility. If anything went wrong with the MMU, it was his duty to use *Challenger* to try to rescue me before I drifted too far away. If I traveled too far for him to see me, his plan was to use the shuttle’s radar to track me. Unfortunately, the radar didn’t work very well. Radar works by bouncing radio waves off of solid objects—particularly metallic objects—and timing how long it takes for the waves to return to the sender. In this case, however, I wasn’t showing up very well.

“We’re not picking you up on the radar for some reason,” Brand said. “We can’t seem to track.”

“Maybe I should have eaten some of those metal cans for breakfast,” I joked. “Instead of just the food.”

“Yes. You’re not reflective enough.”

All in all, it was a productive day. It was also a historic day. Hoot Gibson grabbed the mission’s camera to document the event. He

looked through the **viewfinder** and was so amazed by what he saw that he put the camera aside for a moment. Then he focused again. As space historian Andrew Chaikin has written, the photograph that Gibson took of me flying the MMU “is one of the great mind-blowers of the 20th century.” The picture is one of NASA’s most-requested images. Even after forty years, it still gets lots of attention on social media. “My heart is pounding just looking at the pic,” says one commenter. “He is, hands down, the coolest dude that ever lived,” says another. United States Senator John McCain put it this way: “The **iconic** photo of Bruce soaring effortlessly in space has inspired generations of Americans to believe that there is no limit to human potential.”



Bruce McCandless
floating in space.

*

Astronauts using the MMU on a later mission retrieved two stranded satellites, brought them back to the shuttle, and then returned them to Earth for repair. The jetpack worked perfectly. Nevertheless, the MMU’s functional life was short. After the *Challenger* disaster in 1986, when seven American astronauts died shortly after take-off, the MMU seemed too risky to continue to use. I and other astronauts respectfully disagreed, but we were overruled.

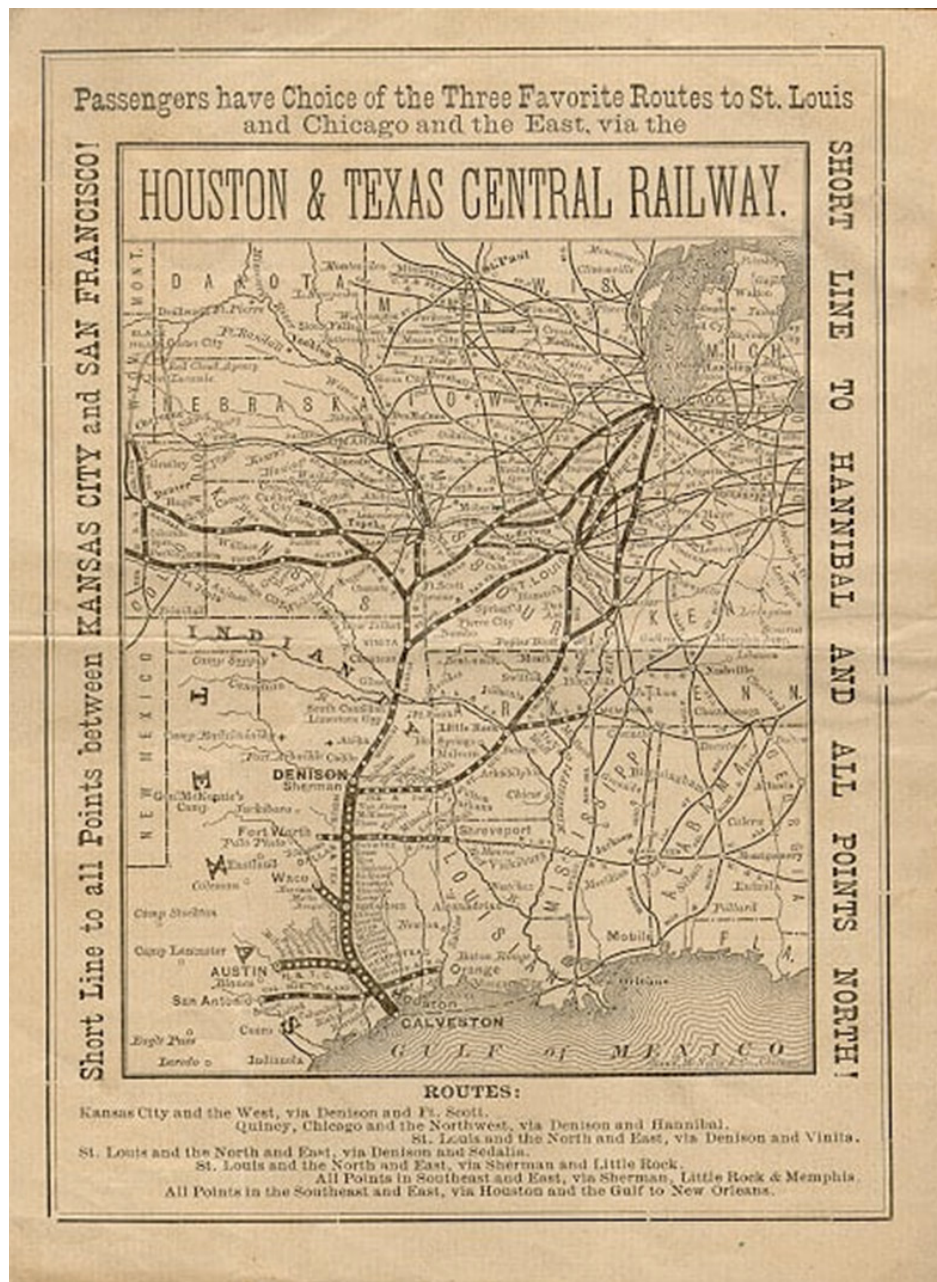
NASA now has a smaller, lighter version of the jetpack called SAFER—the “Simplified Aid for EVA Rescue” device. This machine is used, along with a safety tether, by all American astronauts on spacewalks outside the International Space Station. Weighing in at 85 pounds, SAFER fits around the astronaut’s pressure suit. Like the MMU, it uses nitrogen gas as a propellant. If an astronaut’s tether breaks, he or she can use SAFER to fly back to safety. Though SAFER was tested on shuttle missions in 1994 and 2000, so far it has not—thankfully—been used in an emergency.

The MMU was a beautiful example of **engineering**. It shows how dedicated men and women can take an imaginary object like the Buck Rogers jetpack and turn it into reality. This is a challenge that will continue for as long as human beings have dreams and a desire to make those dreams come true. I love to talk to young people about my jetpack. I’m sure that someone—maybe even someone who’s reading this right now—will eventually produce a new and improved MMU for use by space companies in the future. And I tell anyone interested in getting involved in space exploration to be patient, work hard, and—oh yes—Live Life Untethered!

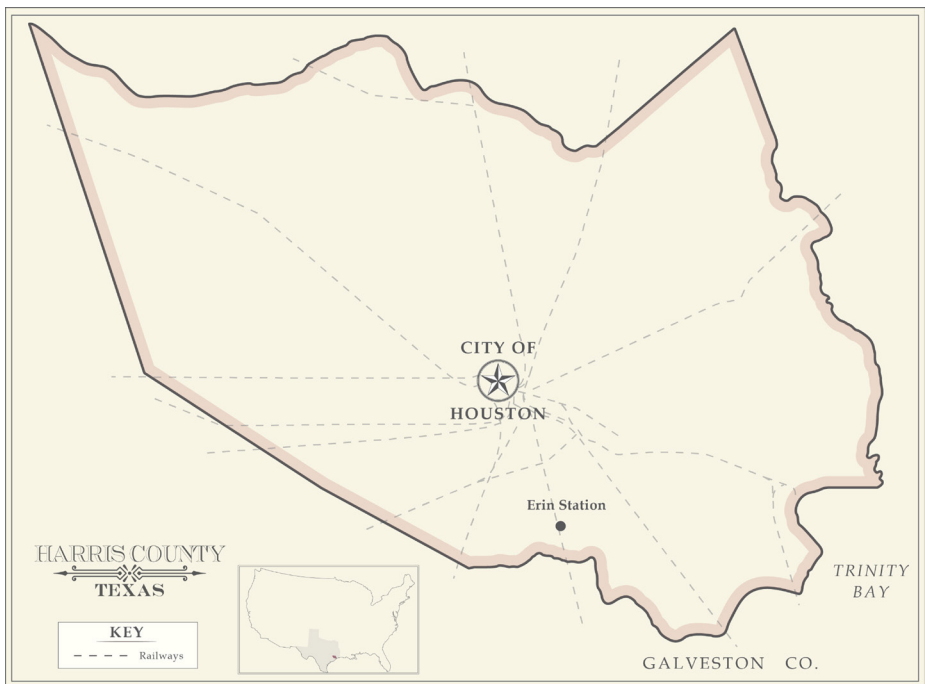
Bruce McCandless III grew up near Houston during the Apollo and Skylab eras, watching Batman and Buzz Aldrin with equal enthusiasm. He graduated from the Plan II Honors Program of the University of Texas and went on to earn an M.A. from the University of Reading in England and a J.D. from the University of Texas School of Law. After teaching at Saint David’s School in New York City, he returned to Austin to practice law. He is the author of Wonders All Around: The Incredible True Story of Astronaut Bruce McCandless II and The First Untethered Flight in Space.

Appendix

Houston and Texas Central Railway, 1879



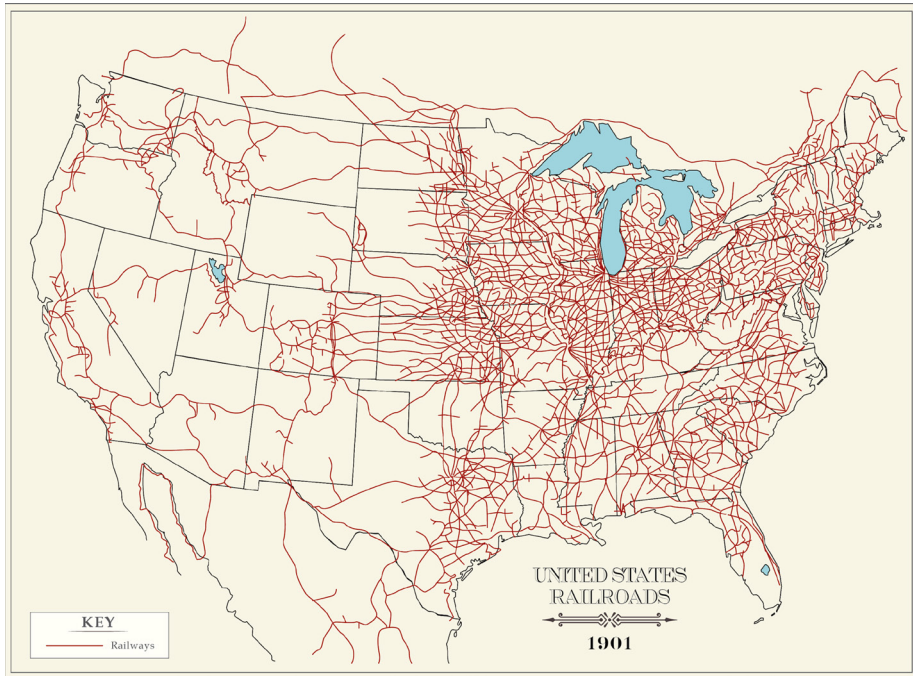
Map of Harris County, Texas, 1902



Houston, Texas, 1891



United States Railroads, 1901



United States Railroads, 1870



Glossary

A

arduous, adj. exhausting

atmosphere, n. outer layer consisting of air and gases

B

biomedical readings, n. medical data consisting of measurements taken from the body of a living thing

C

calloused, adj. dry and hardened from work

cockpit, n. the part of an aircraft that contains the flying controls, instrument panels, and seats for the pilot and copilot or crew

colleagues, n. people with whom someone works in a profession or business; coworkers

combustion, n. the process of burning

commemorate, v. to honor an important event

computer-generated simulations, n. the use of a computer to represent a real-world outcome using mathematical models

cordial, adj. pleasant and friendly

counterparts, n. people who hold equivalent positions

D

disembark, v. to exit a train, ship, aircraft, or other vehicle

E

engineering, n. the work or designing done skillfully

export, v. to send goods to another place for sale

exposition, n. public display

exquisite, adj. stunningly beautiful

entrepreneur, n. an independent business owner

F

formulated, v. created or made

G

glee, n. great delight

grueling, adj. extremely difficult and tiring

H

harvested, v. gathered; brought in

hyperbole, n. a literary device that uses exaggeration to send a message

I

iconic, adj. very famous; popular

illuminated, v. made visible; brought to light

ingenuity, n. creativity; inventiveness

J

jaunty, adj. cheery; joyful

jetpack, n. a device worn on a person's back that pushes them through the air

L

liberated, adj. freed

M

malfunctioning, adj. not operating normally

maneuvering, v. moving skillfully

menial, adj. uninteresting and repetitive; usually describing labor

“moment” narrative, n. a detailed story about a small moment in someone’s life

N

Newton’s Third Law of Motion, n. for every action (force) in nature, there is an equal and opposite reaction

O

orbit, v. to move in a circular path around an object

P

perish, v. to become ruined or die out

persevere, v. persist; continue

personification, n. a literary device in which a nonhuman object or creature has human characteristics

poised, adj. relaxed and confident

pressure suit, n. a self-sufficient protective suit that enables the wearer to sustain basic physical functions as though they were on Earth

prosperous, adj. successful

propelled, v. forced forward

Q

quarreling, v. arguing

R

radio waves, n. electromagnetic waves that have a radio frequency

relative, adj. in proportion to something else; respective

riddled, v. spread throughout

S

sound waves, n. pressure waves carried longitudinally through a medium

spacewalk, n. time spent in space outside of a spacecraft

T

tether, n. a line or cord that connects two objects or people

tethered, v. fastened or tied together

theme, n. a universal idea or lesson of a text

thrust, v. to push forward with force

V

velocity, n. the speed of something in a given direction

vestibule, n. a passageway that allows passengers to enter and exit the train

vibrant, adj. bright

viewfinder, n. a device on a camera that shows the lens' view

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