Einstein in Malaya

Einstein in Malaya

By

Roslan Abd Shukor

Cambridge
Scholars
Publishing

Einstein in Malaya

By Roslan Abd Shukor

This book first published 2024

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-0364-0303-3
ISBN (13): 978-1-0364-0303-4

DEDICATED TO MY PARENTS

ABD SHUKOR HASHIM & NORPIAH SALLEH

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

Figures

Photographs

Boxes

Tables

Map

CHRONOLOGY OF JOURNEY IN MALAYA AND SRI LANKA

1879	Born in Ulm, Germany
1900	Received a PhD from ETH, Zurich
1902	An officer at the Patent Office, Bern, Switzerland
1903	Married Meliva Maric
1905	The Miraculous Year – "Annus Mirabilis" – Einstein published four articles that changed the world (of physics)
1915	Published an article on The General Theory of Relativity
1919	Married Elsa Einstein
1919	The General Theory of Relativity was proven through observations of a solar eclipse at Principe Island, Western Africa by Arthur Eddington
August 1921	Unofficial invitation to Japan
January 1922	Official invitation to Japan
October 6, 1922	Departed from Berlin, Germany for France
October 7, 1922	Boarded the Kitano Maru in Marseille, France
October 13, 1922	Arrived at Port Said, Palestine (north of the Suez Canal)
October 14, 1922	Kitano Maru sailed across the Red Sea
October 27-28, 1922	Colombo, Sri Lanka
November 2-3, 1922	Singapore
November 9, 1922	Announced as winner of the 1921 Nobel Prize for Physics Stopover in Hong Kong
November 13-14, 1922	Shanghai, China

November 14, 1922	Received a telegram stating that he had won the Nobel Prize for 1921 while on board the Kitano Maru
November 17 to December 28, 1922	Lecture Series and Visit to Japan
December 29, 1922	Boarded Haruna Maru from Moji to return to Europe
December 31, 1922	Arrived in Shanghai, China
January 2, 1923	Departed from Shanghai, China
January 5-6, 1923	Hong Kong
January 10-12, 1923	Singapore
January 13, 1923	Malacca
January 14, 1923	Penang
January 19, 1923	Negombo and Colombo, Sri Lanka
January 22, 1923	Completed final draft of a manuscript on gravitation and electricity
February 1, 1923	Arrived at Port Said, Haruna Maru's voyage ended
February 16, 1923	Departed from Port Said and boarded the Oranje to Spain
March 14, 1923	Boarded a train to Barcelona, Spain
March 21, 1923	Returned to Berlin, Germany
October 17, 1933	Migrated to the US and resided permanently in Princeton
1940	Became a United States citizen
April 16, 1955	Died

PREFACE

This book is written to illuminate the lesser-known journey of Albert Einstein to the Malay Archipelago in the early 1920s. Einstein is one of the most famous scientists of the 20th century. His theories have changed our understanding of the universe. Many books have been written about Einstein, but little has been published on his visit to the Malay Archipelago at the end of 1922 and early 1923. This book is about his visits to Singapore, Penang, Malacca, and Sri Lanka. It is based on his diary entries during this journey to the East. Several other sources, such as newspapers, journals, and magazines published especially between 1922 and 1923, were also used as references. They are listed at the end of this book. On a voyage from Europe to Japan with his wife Elsa at the end of 1922, Einstein visited and wrote about Colombo and Singapore. On the return journey, they visited Singapore, Malacca, Penang, and Sri Lanka.

Einstein continued to work on his theory during the journey, including when the Haruna Maru stopped over in Malacca and Penang during the return voyage in January 1923, before reaching Port Said, Palestine, on February 1, 1923. The paper was published by the Prussian Academy of Sciences in 1923. He also published several other articles that year. During the voyage, Einstein wrote in a diary, which was very neatly written. He recorded what he saw in those places. Some of what he wrote may be somewhat controversial and seem racist today. The backwardness of Asian countries in the early 20th century is consistent with what he wrote in his diary. At that time, most Asian countries were still colonized, and the populations were poor and backward. So, it was natural for him to write what he saw during those travels.

Chapters 1 and 2 are on Einstein's childhood and personality and are written for readers who are not familiar with Einstein and who do not know much about his background and theories. Chapter 3 describes the events that led up to his journey to Asia. Chapter 4 is about his first and second visits to Singapore. The news about the Nobel Prize he received while traveling to Asia is discussed in Chapter 5. Chapter 6 is about his visits to Malacca and Penang. Chapter 7 is on the *Singapore Manuscript* he wrote during the journey. His written notes from his time in Sri Lanka are discussed in Chapter 8. Some of his observations while in Southeast Asia are discussed in Chapter 9. Many scientists, personalities, and

institutions are mentioned in this book. Brief biographies of several of the important people and institutions mentioned in the book are given in the Appendix.

This book tells the story of the world-renowned scientist's journey to Malaya–Singapore, Malacca and Penang, and Colombo, Sri Lanka, during colonial rule. No institutions of higher learning or universities were there to greet this great scientist in Malacca, Penang, and Colombo. He traveled to these cities on his own, without the "intervention" of local guides. The written notes reflect his opinions of the people he met and the places he visited. This book is partly based on my visiting fellowship at the Department of Physics, Princeton University. Princeton is home to the Institute for Advanced Study, where Einstein worked from 1933 until he died in 1955.

I thank Nur Fadhilah Md Noor for reading the initial draft of the manuscript. I also thank Heinz-Hermann Mazajka for his assistance in elaborating the translation of Einstein's diary from German into English, and Sidek A. Aziz of Universiti Putra Malaysia and Mohd Samsudin of Universiti Kebangsaan Malaysia for their assistance in preparing this book. This work was funded by the National University of Malaysia under grant number KRA-2018-028.

CHAPTER 1

AN ICON

A significant mistake in his calculations shattered his optimism. Einstein wrote, "*Discovered a fly in my electricity ointment in the afternoon. A pity. True tropical heat."* A few days before, while in Singapore, he had been full of confidence and written to Niels Bohr about finally solving the ultimate physics problem. But in Malacca, aboard the sweltering ship, his hope was dashed. He had to start all over again. Unifying gravity and electricity kept his mind occupied during the entire voyage. This is the story of Einstein's travels to Malaya and Sri Lanka in 1922 and 1923 and of his lifelong attempt at a unified theory.

Albert Einstein was a pioneering physicist who made ground-breaking contributions to our understanding of the universe. His theory of general relativity revolutionized our understanding of gravity, space, and time. It explains how gravity works as the curvature of space-time caused by massive objects. His famous equation, $E=mc^2$, describes the relationship between energy and mass, which led to the development of nuclear power and the atomic bomb. In 1921, Einstein was awarded the Nobel Prize in Physics for his explanation of the photoelectric effect, which provided experimental evidence for the existence of photons. He was not only a brilliant physicist but also a philosopher and a humanitarian. He strongly advocated pacifism and civil rights, and his work and beliefs continue to inspire people today. His unique appearance and personality – his wild hair and quirky habits – made him an iconic figure in popular culture. His name is synonymous with genius, and his image is instantly recognizable worldwide (Halpern 2019; Stern 1999).

Albert Einstein made contributions that have impacted how we live today through the theories he put forward over a hundred years ago. Solar cells and the Global Positioning System (GPS) are examples of things that use Einstein's theories that we take for granted today. Electronic gadgets such as tablets and other applications also use the theories put forward by Einstein through several articles from the beginning of the 20th century. The aircraft navigation system uses the theory of relativity to find the location of and land safely at the designated airport. Einstein's photoelectric

effect theory enables sensors on many devices to function. Many medical devices and imaging devices use Einstein's theories. Without his theories, medicine would not have advanced as it has.

The sophisticated technology of today uses theories put forward by Einstein and other scientists. However, more importantly, his theories give us an understanding of the nature of space and time. His theory of relativity also changed our understanding of gravity, as put by Isaac Newton centuries before.

The Most Influential Persons in History

Michael Hart, in his 1978 book "The 100: A Ranking of the Most Influential Persons in History," ranked Einstein the 10th. This showed his outstanding intellectual contribution to human progress. Prophet Muhammad (peace be upon him – pbuh) was in the top position, with Isaac Newton in second place and Jesus Christ in third place. The top ten most influential people in history according to Hart were as follows:

1. Prophet Muhammad (pbuh)
2. Isaac Newton
3. Jesus Christ
4. Buddha
5. Confucius
6. Paul
7. Ts Ai Lun
8. Johann Guttenberg
9. Christopher Columbus
10. Albert Einstein

Although Einstein became famous for the theory of relativity, he was awarded the Nobel Prize for his work on the photoelectric effect, a phenomenon that had puzzled physicists for a long time. Light had long been known as a wave phenomenon. However, in the photoelectric effect, Einstein stated that light was composed of particles called *photons*. The photoelectric effect brings about the concept of wave-particle duality, which became one of the critical components of quantum physics. The photoelectric effect is used in many devices we use today and was also essential for the development of quantum physics. Today, we know that light, a wave phenomenon, can also show particle properties under different conditions.

Besides pondering his theories, Einstein also traveled around the world. He visited many places, such as Japan and South America, at the height of his fame. During his travels from 1922 to 1933, he wrote about his experiences in six diaries.

Wherever he went, Einstein was greeted warmly and well-received. In Japan, he stole the guests' attention at a ceremony with the emperor of Japan. A few months before his arrival, many articles about him and his theories were published in Japan. In voyages and visits to all corners of the world, Einstein wrote in his diaries in elaborate and beautiful handwriting. Sometimes, the notes were interspersed with mathematical calculations that he thought of while on the voyages. From these diaries, we get a glimpse of his views about the places and the people he met. Even more interesting is that he wrote about Malacca, Penang, Singapore, and Sri Lanka during his journey to Asia.

The Miraculous Year – "Annus Mirabilis"

In December 1901, Einstein applied for a position at a patent office in Bern, Switzerland, with the help of a schoolmate, Marcel Grossmann. Initially, he was appointed as a probation officer. Beginning June 23, 1902, he was promoted to the post of the office's technical member, third class. Despite having duties related to the job, he still spent time conducting research in theoretical physics. Six months after getting the job, he married Mileva Maric, a fellow student at the Swiss Federal Institute of Technology (ETH) in Zurich, who also majored in physics.

In April 1905, at twenty-six, Einstein submitted his doctoral thesis entitled "A New Determination of Molecular Dimensions" to the ETH. The thesis was approved in July of the same year. The year 1905 was the most productive for Einstein. He wrote four articles that had a significant impact on the world of physics. The four articles changed how we see our world. The year 1905 is called "the miraculous year," and in 2005, the world celebrated the World Year of Physics to commemorate 100 years of Einstein's contributions through these four articles (World Biography 2019).

His first article was on the photoelectric effect, which stated that light consisted of particles that he referred to as *quanta*. Applications of the photoelectric effect include solar cells, imaging techniques such as computed tomography (CAT), television and the communication systems that use the optical fibers that are so important to our technology today.

Einstein's second article was about Brownian motion. The concept of Brownian motion was first introduced by Robert Brown in 1827 as a

random number generator. In the article, Einstein made some calculations that further reinforced the physical existence of atoms. Before that, scientists were not sure whether the atom was simply an abstract concept or an entity that really existed. In the second article, he expressed the mathematical laws that governed the movement of the particles called *Brownian motion,* based on the principle of the kinetic molecular theory. Today's uses of Brownian motion include modeling noise, fractals, the theory of crystals or crystal growth, and stock market simulations. In the financial sector, Brownian motion is used in investments, in predicting uncertainty, and in price stabilization schemes.

Einstein's third article was on a theory related to time, distance, mass, and energy. This theory is consistent with electromagnetism but does not include gravitational force. It is now known as the *Special Relativity Theory*. In this theory, he stated that the laws of physics were invariant for physical systems undergoing a change of position with constant velocity. Moreover, in this article, he said that light traveled in a coordinate system that was "stationery" with a constant velocity c, regardless of whether stationary sources or moving sources emitted the rays of light. In other words, light moved in a straight line at a constant speed, c. Einstein subsequently took over ten years to find a formula for an accelerating system.

In 1915, Einstein published a theory that considered an accelerating system. This is now known as the *General Theory of Relativity*. In this theory, he found that an object with a large mass can "bend space," which can be attributed to gravity. The General Theory of Relativity is applied in the Global Positioning System. The GPS is helpful in many applications, including smartphones, with apps like Google Maps. The GPS satellites' internal clocks are precisely calibrated and updated regularly to take into account the effects of both special relativity and general relativity time dilation. These adjustments are necessary to deliver the exact location data that GPS users depend on for a variety of purposes, including navigation, surveying, and telecommunications.

Einstein's fourth article written in 1905 was about the equivalence of energy, E, and mass m, $E = mc^2$, which is the equation that is often mentioned when we hear his name. The relationship between energy and mass can be used to determine the energy produced or absorbed in a nuclear reaction. This energy is usually in the form of light or heat. In a nuclear reaction, a tremendous amount of energy is produced. This explains why nuclear weapons and nuclear reactors produce very high energy. The four articles published by Einstein in 1905 and examples of their applications are summarized in Table 1-1.

Table 1-1. Einstein's four articles published in 1905 – "The Miraculous Year" – "Annus Mirabilis"

Article	Discovery	Application
1. On a Heuristic Viewpoint Concerning the Production and Transformation of Light (Einstein 1905)	Photoelectric effect	Solar cells, imaging technologies such as tomography, communication systems include fiber optics
2. On the Motion of Small Particles Suspended in a Stationary Liquid, as Required by the Molecular Kinetic Theory of Heat (Einstein 1905a)	Extension of the Brownian motion	Sound modeling, growth of crystals, stock market simulation, investment, market uncertainty, price stabilization scheme
3. On the Electrodynamics of Moving Bodies (Einstein 1905b)	Special Theory of Relativity	GPS, nuclear reactor
4. Is the Inertia of a Body Depend Upon Its Energy Content? (Einstein 1905c)	Energy-mass equation	Nuclear reactor

A University Professor

These four articles, especially that on the theory of relativity, made Einstein famous, and he was offered attractive positions. In 1909, after serving as a lecturer at the University o, he was appointed as an Associate Professor at the University of Zurich. Two years later, he was appointed a full Professor at the German University in Prague, Czechoslovakia. A year later, he became a full Professor at ETH Zurich. Max Planck and Walther Nernst came to Zurich to persuade him to accept the Research Professor post at the University of Berlin in Germany in 1913. He accepted the offer in 1914. While in Berlin, his wife Meliva remained in Zurich with their

two sons. A few years later, Einstein and Meliva were divorced. He married his cousin Elsa in 1919.

His subsequent emigration was to the United States. He had visited the California Institute of Technology several times. On his last trip to the United States, he was offered a position at the Institute for Advanced Study (IAS) in Princeton, New Jersey, which had just been established at the time. He lived in Princeton from 1933 until his death in 1955. When Einstein arrived at Princeton and was asked what he needed for his study, he replied, "A desk, some pads of paper and pencils, and a large trash can to put in all my mistakes."

Einstein's House in Princeton

For most scientists who visit Princeton for the first time, a visit to Einstein's house is a must. Many homes in Princeton were built in the early 1900s, adding to the charm of a small town with a population of approximately 30,000 people. The house is several minutes' walk from the university campus. The two-story house at 112 Mercer Street looks like any other house on the street. It has a large front porch in the Greek style. That was the residence of Albert Einstein from the time he left Germany and joined the IAS in 1933. Only a tiny sign that says "PRIVATE RESIDENCE" can be seen on the front gate (Photo 1-1). However, some maps for tourists state the location of Einstein's house. There is a simple and tidy garden in front. Occasionally, groups of tourists can be seen gathering in front of the house, taking pictures. He asked that his house not be turned into a museum. After his death, his secretary and his stepdaughter lived there. After their deaths, the house became the property of the IAS.

He left Europe due to the political situation that endangered himself and his family. After leaving Europe, he resumed his work at IAS, located near Einstein Drive (Photo 1-2). He is said to have walked to his office every day in good weather. Once in a while, he was seen playing with children along the way, including with water pistols.

The IAS is an institute that was established in 1930 and funded by donors. It is located on eight hundred acres of land in Princeton, New Jersey. The Fuld Hall is the main building (Photo 1-3). Each year, the IAS provides membership to many researchers.

Photo 1-1. Einstein's house at 112 Mercer Street, Princeton. There is no sign to indicate that Einstein occupied this house. There is a sign saying "PRIVATE RESIDENCE" on the front entrance. Occasionally, groups of tourists can be seen gathering and taking pictures in front of the house.

Photo 1-2. Einstein Drive in Princeton, near the IAS. Every day, Einstein walked or rode a bicycle down this road to his office. In the summer, he sometimes joined children playing with water pistols along the road.

Photo 1-3. Fuld Hall, IAS main building.

CHAPTER 2

CHILDHOOD AND PERSONAL STORY

This chapter is on Einstein's early childhood, personality, hobbies and funny stories. He was born in Ulm, Germany, on March 14, 1879. His father, Hermann Einstein, was a salesman and engineer, and his mother was Pauline Koch. "Too fat, too fat" was the spontaneous expression from Grandma Jette as soon as her grandson was born. Not only that, but the shape of his head was also abnormal, which worried Einstein's parents. Nevertheless, the doctors assured them that his condition would return to normal a few months later. As it turned out, his head became normal after several months.

Childhood

Their worries did not end there. At three years old, unlike other children, Einstein was apparently still unable to talk. His parents were worried that he had a brain problem. When asked, Einstein said that he was slow to speak because he waited until he could speak in complete sentences. However, according to Grandma Jette, at two and three years old, he started talking about his silly ideas whenever they met. Jette wrote, "He was a good and loved child, and we had a long chat about his silly ideas."

When he was two years and four months old, his sister Maja was born. Einstein was disappointed because he wanted a brother. He asked, "Where is the wheel?" when Maja was born. This showed that he was not slow to speak, but perhaps his parents were eager for him to talk as soon as possible. He may have been a little slow to talk and talked only with people he felt comfortable with, like Grandma Jette. It is similar to a quiet adult who doesn't like empty talk.

Einstein only knew his grandparents on his mother's side. His grandfather on his father's side, Abraham Einstein, and grandmother, Hindel, died when he was an infant. The grandfather on his mother's side, Julius Derzbacher, was a baker. His family took the name Koch, and he was a successful wheat trader. In 1880, his family moved to Munich, where his father Hermann and his uncle Jakob opened a company producing gas and

electrical appliances. Hermann and Jakob sought a contract to supply generators and electric lights for the southern German municipality.

Although Jewish, his parents did not seek a Jewish school in their neighborhood. At six, he was sent to a Catholic school, Petersschule, in Munich. Einstein began his elementary school there for three years. As the only non-Christian student of seventy in the class, he attended religious subjects and was often helpful with his friends.

At eight, Einstein was transferred to the Luitpold Gymnasium (now known as the Albert Einstein Gymnasium). He obtained his primary and secondary school education there. The school focused on math, science, Latin and Greek. Einstein was said to be a poor student, and some teachers thought he had a mental disability. He could not speak fluently, even at the age of nine. However, he had been interested in nature since childhood. According to Walter Isaacson (2018), he became interested in nature when his father gave him a compass to play with. The incident occurred at the age of five during a fever. He asked how the compass worked. Hermann replied that the compass worked due to the Earth's magnetic field. The answer did not satisfy Einstein. He once said, "When I was a child, my father showed me a small compass, which had a big impact on my life." This led him to study the "mysterious power" behind the compass.

At twelve, Einstein was very good at mathematics and physics. He made much progress in these two subjects with encouragement from his parents and his tutor. His math proficiency was one year higher than his peers. Even more impressive, he studied Euclidean algebra and geometry independently. It was at this age that Max Talmud, his mathematics tutor, gave him a geometry book. He read the book immediately and later learned more complex mathematics independently. His mother and father also bought higher-level mathematics books for him to read during the summer school holidays.

In 1894, his father's company suffered, which forced him to sell the factory in Munich. His family moved to Milan and later to Pavia in Italy. However, Einstein, who was fifteen then, stayed in Munich to finish his schooling at the Luitpold Gymnasium. It did not go well. He did not like the establishment and did not like the way he was taught in school. In late December 1894, he was forced to join his family in Pavia.

By the age of sixteen, he began to study seriously. In October 1895, he took the examination for admission to the Swiss Federal Institute of Technology (ETH) in Zürich but failed to obtain the level required for the general section. However, he got excellent results in physics and mathematics. On the advice of his teacher, he completed high school at the Cantonal School in Aarau, Switzerland, and was automatically admitted to

the ETH in 1896. At first, he aspired to become a mathematics and physics teacher.

ETH Zurich is a public research university founded in 1854 with the aim of producing engineers and scientists. The university focuses specifically on science, technology, engineering, and mathematics. At ETH, Einstein realized his interest was more in physics than mathematics. He completed his studies as a normal student in four years and was awarded a diploma in July 1900. He applied unsuccessfully for a job as an assistant at ETH. This was probably due to his disagreement with one of his professors. It is believed that Einstein's disapproval of the actions of his professors, who used their power to take disciplinary action against students, caused him to be disliked. On the other hand, Einstein held that the primary need in education was "the need for intellectual freedom." With that setback, he did not continue to apply for a job at the university.

He began teaching after graduating from ETH. Between May 1901 and January 1902, he was a teacher at Winterthur and Schaffhausen. After that, he moved to Bern. To make a living, he gave mathematics and physics tuition. At the same time, Einstein surrendered his German citizenship and formally applied for Swiss citizenship, which he received on February 21, 1901.

Personality

Einstein was quite a solitary individual. He was not fond of socializing and was more comfortable with a simple lifestyle, like that of an artist or those seeking a spiritual life. He wore simple clothes, no socks, and no tuxedos. This introverted attitude may also have made it easy for him to travel on the long voyage to Japan. He accepted the invitation to Japan to get away from his busy schedule, which prevented him from being alone and thinking calmly. Einstein was a simple person. For example, he shaved with only water and not cream. Given shaving cream, he would use it, but when the cream ran out, he would revert to using water.

Einstein was not fond of attending parties and formal events. However, he often complied when invited. He often attended events wearing shoes without socks. During a lecture in conjunction with receiving the Nobel Prize in 1923, he wore an old jacket. When offered a new jacket before going on stage, he turned it down. While meeting the Japanese emperor, he wore worn-out clothes that made the Japanese palace officials feel awkward.

However, the voice and reason of the common people weighed heavily on him, especially when he was at the peak of his fame. He did not turn

down invitations. Instead, he used them to promote the values of humanity. Although Einstein did not like to socialize, he was willing to attend boring ceremonies and greet hundreds of people during the events. He was also ready to be harassed by photographers and reporters and hear many speeches that praised him, although such matters did not mean anything to him. In the volatile political environment of 1920s Germany, his influence and pacifism made him a controversial figure.

Intelligence and IQ

What is Einstein's actual IQ score? It's quite challenging to find out. This is because, in the 1900s, the method for measuring IQ had just been introduced. Sometimes, we hear news about children supposedly having IQs higher than Einstein's. No one knows his IQ scores, as no records show that he took the test.

A high score on the IQ test is above 160. According to this scheme, a score above 135 puts a person in the 99% highest group. While some have said Einstein's IQ was 160, this score cannot be proven. Furthermore, in his childhood, he faced many problems in his study. According to many experts, at a young age, he may not have had a high IQ.

During his adolescence, Einstein tried several scenarios that required a high level of intelligence in his mind. These included chasing light visually. He asked himself, "What will I see if I move at the same speed of light?" Based on some of these scenarios, he is believed to have had very high spatial intelligence. Spatial intelligence is the ability to think of the relationship between space and physical objects. This intelligence might have given him a unique way of thinking and may have been critical to his grand theories in his mid-20s and 30s.

One of the strategies that Einstein used was to put himself into the object of thought. When thinking about light, he imagined himself as light and felt what happened as he moved with the light. Such thinking was also found in his travel notes. For example, during a visit to Kampung Simpang Bedok (Bedok Junction Village) in Singapore in early 1923, he was impressed with the trees and noted in his diary – "trees wonderful." This shows that he imagined himself as a tree growing up in the jungle and could feel the grandeur.

Hobbies

As a child, Einstein loved to play with toy models and make houses out of paper cards. He also loved to play the violin and was seen carrying it everywhere, including on the street. His mother had sent him to learn the violin as a child. He played violin at small parties and events. However, his level of playing cannot be ascertained. He stated that he was a modest violinist, but what was really important for him was to have fun. He would spend hours playing the instrument. He also composed his own songs. As he got older, Einstein switched to playing the piano because he no longer liked how the violin was played. He admired Bach and Mozart and practiced often. In addition to Bach and Mozart, he also enjoyed the music of Vivaldi, Corelli and Schubert. Often, he played the piano and violin without looking at the musical notes. In adulthood, Einstein continued to enjoy playing music. He once said that he might have been a musician if he had not been a physicist. According to Einstein, he dreamt during the day in music, looked at his life in terms of music, and got great enjoyment in his life from music.

In addition to playing music, Einstein was also fond of sailing. He was often seen sailing alone, spending time on his yacht while pondering physics. During his lifetime, he owned several sailboats, including one in Caputh, Germany. The boat was confiscated by the Nazis in 1933 when they took power. While living in the United States, he had a yacht called Tinnef.

Einstein also enjoyed reading classic books such as Don Quixote by Cervantes. In addition, he enjoyed reading scientific books such as Kraft und Stoff: Empirisch-naturphilosophische Studien (Energy and Matter: An Empirical Study of the Philosophy of Nature) by Ludwig Büchners and Naturwissenschaftliche Volksbücher (Popular Books on Natural Sciences) by Aaron Bernstein. He also enjoyed reading books written by the philosophers Spinoza and Schopenhauer.

Einstein's other hobbies were riding a bicycle, playing with children, hiking, and mountain climbing. During a stopover in Malaya that included time in Malacca and Penang, he did much walking while sightseeing with his wife. They walked from the harbors to the city centers in both Malacca and Penang. His fondness for the outdoors may have helped him to walk around the city when exploring both places. During the return voyage from Japan, before the ship docked in Colombo, Sri Lanka, he tried to organize a tour with other passengers. This was to avoid being hassled by the aggressive rickshaw operators. However, his attempt failed.

Funny Stories

As someone who always thought deeply about his theories, Einstein was sometimes forgetful when interacting with others. Here are some funny incidents and stories about Einstein.

Helping Johanna with Math

The failures and challenges he experienced while in school made him sympathetic to others, and occasionally, he spent time helping high school students with their math questions. For example, he used to be a physics and math tutor to a student who happened to be his neighbor in Princeton. Another instance occurred in early May 1952, when he was 73, and he received a letter from a fifteen-year-old student who asked a math question related to geometry (Topper &Vincent 2017). Johanna Mankiewicz, the high school student in Westlake, Los Angeles, was the daughter of Herman Mankiewicz, a well-known writer in Hollywood. Being in Hollywood might have encouraged Johanna to write to celebrities like Einstein. Johanna and her friend needed help answering a geometry question posed by their teacher. In Johanna's mind, a great physicist like Einstein could answer such a difficult question compared to her mathematics teacher at Westlake, "who knew nothing." That's what Johanna thought. She sent the problem to Einstein and wrote, "We are aware that you are a very busy man, but you are the only person we believe can answer this question." After stating the math question, Johanna wrote, "I think you agree that this question is really difficult to answer!"

Johanna may not have really expected Einstein to reply to her letter. However, in his spare time, Einstein liked to reply to letters from children and the public that he felt were interesting and appropriate. Usually, he would write the answer on the back of the letter containing the question and ask his secretary, Helen Dukas, to type or send the handwritten answer.

Johanna's question was related to ordinary Euclidean geometry, which involves the application of Pythagoras' theorem. The question was common in any high school math book at the time: "What is the length of the external tangent for two circles with a radius of 8 inches and 2 inches?" Einstein wrote the answer on the back of Joanna's letter and sent it directly without being retyped by Helen. The letter was sent by airmail, but Einstein forgot to use the correct postage stamp, which was a six-cent stamp.