

2017 JEWELL MAINSTAGE PLAY GUIDE



PROFESSIONAL THEATRE IN A NEIGHBORHOOD SETTING

2017 JEWELL MAINSTAGE
SEASON: *PURSUE*

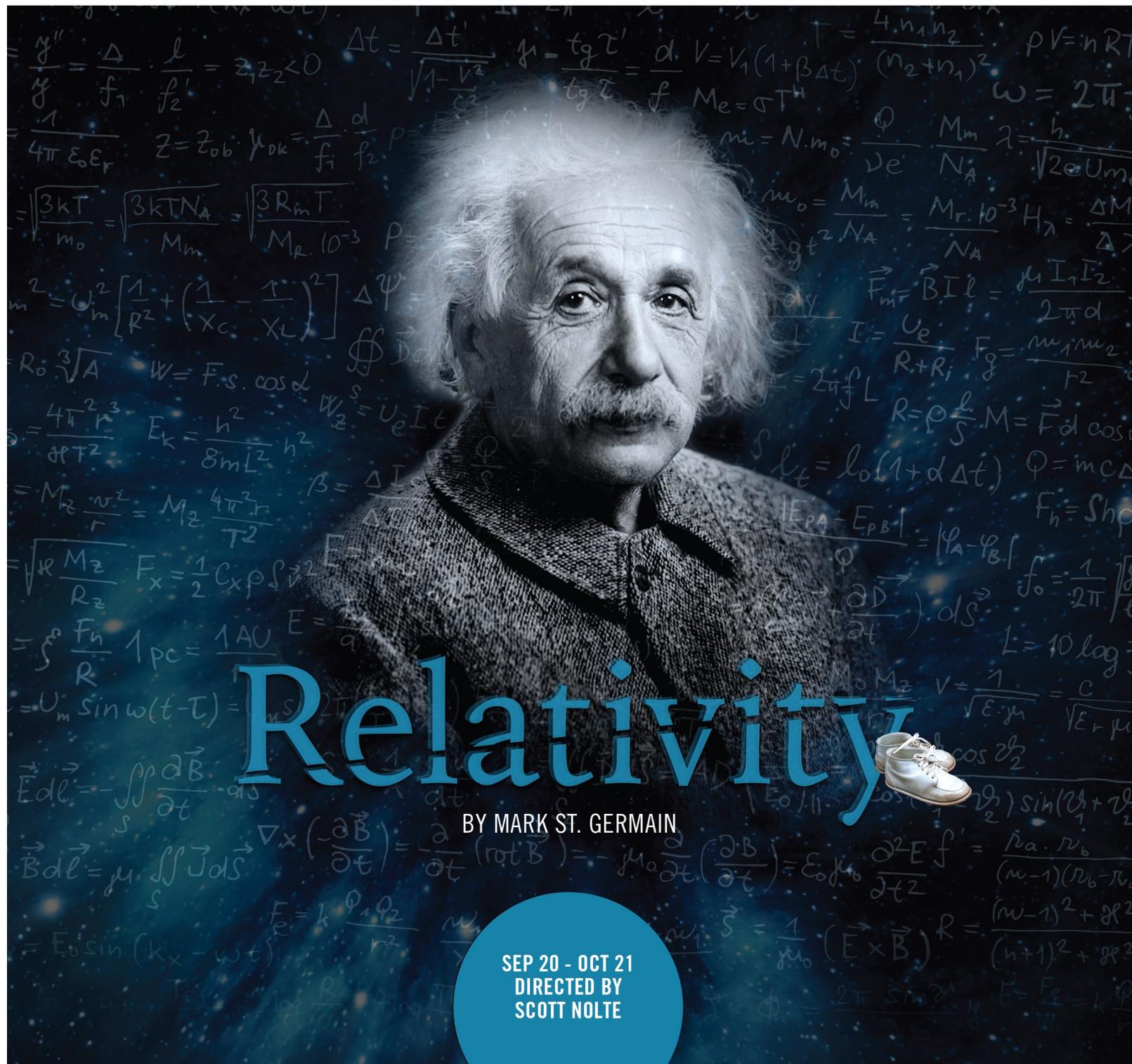
ROOM SERVICE
FEB 1 – MAR 4

EVIDENCE OF THINGS UNSEEN
MAR 29 – APR 29

BUSMAN'S HONEYMOON
MAY 17 – JUN 24

PERSUASION
JUL 12 – AUG 19

RELATIVITY
SEP 20 – OCT 21



Relativity



BY MARK ST. GERMAIN

SEP 20 - OCT 21
DIRECTED BY
SCOTT NOLTE

WELCOME

“Not everything that counts can be counted.”

In 1902 Albert and Mileva Einstein had a daughter. After 1904 she was never seen or spoken of again. Fast forward to 1949 as an insistent reporter searches for answers to Einstein’s secrets, she discovers that not everything adds up.

People are complicated. There are more sides to a person than the side most people see.

Albert Einstein was one of the greatest minds of the 20th Century. Through his scientific discoveries, he reshaped the way we view the concepts of space and time. He was such a great scientist that *Time Magazine* named him their Person of the Century in 1999. He is a person whose celebrity has lived on long after his death as a beloved popular icon.

But does being a great scientist make you a good person?

At what point do the secret personal struggles and failings each of us have, begin to outweigh great contributions to society? As reporter Margaret Harding delves deeper into Einstein’s past, we invite you to observe the subjective realities between what is considered greatness and what is considered goodness.

Will Albert Einstein measure up? ... will Margaret?

Josh Krupke

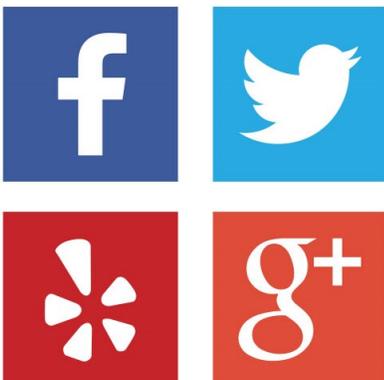
Taproot Theatre, Marketing Assistant

P.S. We would love to hear from you! Tag us on any of the social media platforms listed below.

EVERYONE’S A CRITIC ... starting with YOU!

What did you think?

Post, tweet, update, review...
Let us and your friends know
if you liked the show!



Search “Taproot Theatre”
to find us on your favorite
social media websites.

*Be sure to tag us when
you post about us!*

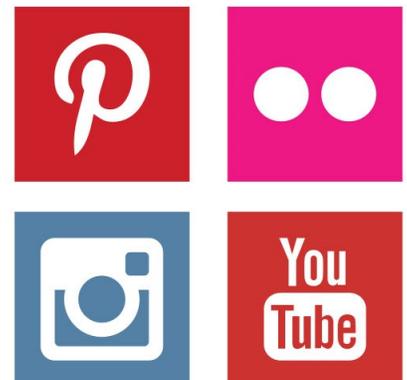
TAPROOT THEATRE
C O M P A N Y

*Professional theatre in
a neighborhood setting*

TAPROOTTHEATRE.ORG

See behind the curtain!

See what inspires and delights
us behind the scenes here at
Taproot Theatre.



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A Play Guide published by
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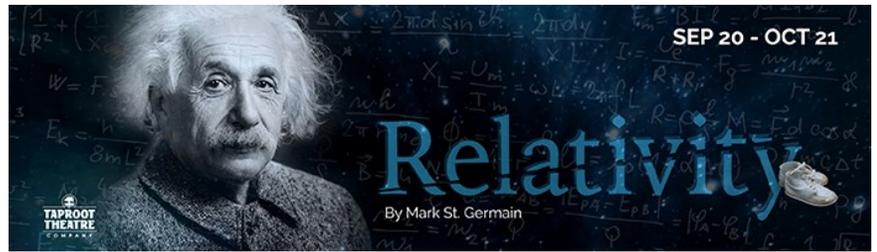


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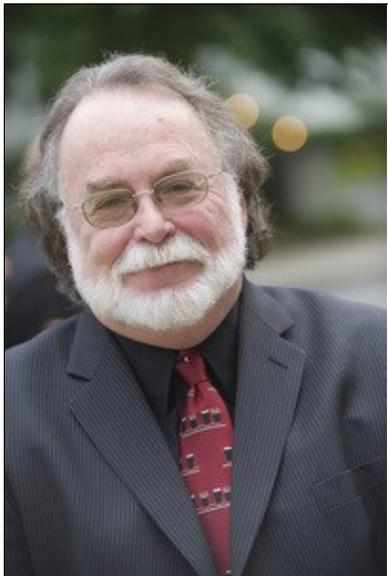
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Mark St. Germain



MARK ST. GERMAIN

Taproot Theatre has previously produced several of Mark's plays, including *Freud's Last Session*, which ran for two years Off-Broadway as well as international productions; *The Fabulous Lipitones*, a musical comedy co-written with John Markus; *Best of Enemies*; and *The God Committee*. Taproot will produce *Camping with Henry and Tom* (Outer Critics Circle Award and Lucille Lortel Award) next season. Other plays by Mark include *Becoming Dr. Ruth*, *Scott and Hem in the Garden of Allah*, *Ears on a Beatle*, *Out of Gas on Lover's Leap* and *Dancing Lessons*. Mark wrote the Tammy Wynette Musical *Stand By Your Man* as well as several other musicals; co-wrote director Carroll Ballard's film *Duma*; and produced and directed the documentary *My Dog, An Unconditional Love Story* featuring Richard Gere, Glenn Close and Edward Albee.

He is an Associate Artist of the Barrington Stage Company, a recipient of the William Inge Festival's New Voices Award, a member of the Dramatists Guild and the Writer's Guild East, and an alumnus of New Dramatists. His latest play, *Relativity*, is being presented at four different theatres around the country as part of a National New Play Network Rolling World Premiere.

A Note From the Playwright

*In 1902, Albert and Mileva Einstein had a baby daughter.
After 1904, she was never seen or spoken of again.*

Immediately after reading this, I knew I'd be attempting to write a play to ask, "Why?"

The existence of Lieserl Einstein only became public knowledge after Einstein's death with the discovery of letters between him and his first wife, Mileva. Their daughter was born, their daughter contracted scarlet fever, and her parents worried about what would become of her.

After that, mystery.

In her book, *Einstein's Daughter*, artist and author Michelle Zackheim tried to find the definitive answer to this question without success. Instead, she found many theories Einstein scholars developed after learning of Lieserl's existence. She was adopted by the Savić family, friends of the Einsteins. She entered a convent. She lived a long life in California never knowing who her birth parents were. She died of scarlet fever.

The last possibility I discounted.

When learning from London colleagues that a young woman was introducing herself as his daughter, Einstein didn't dismiss her as he would a child who had died. Instead, he hired a private investigator. The only reason to employ the detective, I thought, had to be that Einstein was unsure if it was Lieserl – that she lived.

With that thought, I began developing my own scenario of events which were the foundation of my play *Relativity* and researching the genius whose dark sides were never seen by most people who held him in awe.

Is *Relativity* conclusive? Only dramatically. Will we ever have a definite answer? Albert Einstein answers that in his own words:

"Imagination is more important than knowledge. For knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand."

But I keep in mind one more Einstein quote, even as I write this:

"Whoever undertakes to set himself up as a judge of Truth and Knowledge is shipwrecked by the laughter of the gods."

– Mark St. Germain

Synopsis

Please Note: This page contains spoilers and important plot points.



Albert Einstein holding his son, Hans Albert. ca. 1904.

Albert Einstein agrees to an interview with Margaret Harding who says she is a reporter for *The Jewish Daily*. He invites her to his home and introduces her to his secretary and housekeeper, Miss Dukas, who is immediately suspicious of her. Margaret explains all she wants to do is write about Einstein, the husband and father so he gives her a basic description of his marital history and the sons he had with his ex-wife, Mileva.

Margaret then reveals that she has previously met with Einstein's son, Hans Albert, and that he told her that Einstein had mistreated Mileva and his sons. Then Margaret shows him a copy of the restrictive marital contract Einstein wrote for Mileva and says it was Einstein's friend Helene Savic who gave much of the information to her.

When Margaret asks about Einstein's daughter but he quickly denies that he'd ever had one. Margaret reveals that she knows his daughter's name was Lieserl and at that point Einstein tells her to leave. Margaret warns Einstein that others can find the story too so he relents. He confesses that the baby was born out of wedlock, that his family had disapproved of Mileva and that the baby had contracted scarlet fever. Margaret decides this is all she needs to know and gets up to leave. But before she can go Einstein suddenly realizes that Margaret actually is Lieserl.

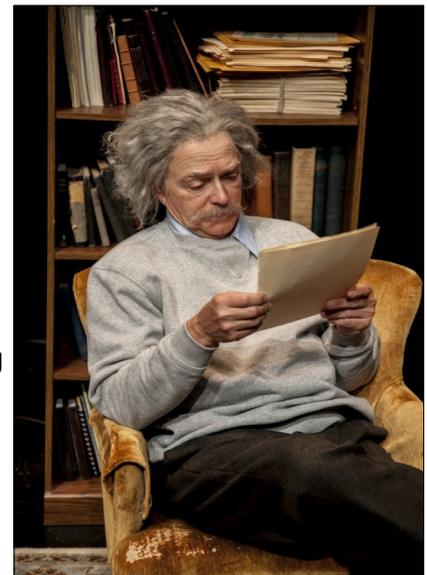
She asks Einstein to explain how he could have given her away and discloses that she learned the truth only recently, after finding letters written from Mileva to her adoptive mother. She tells him that she didn't come to confront him, just to see who he really is. The two begin debating the measure of goodness versus greatness; Margaret believes that in order to be great, one must also be good, arguing that Einstein's scientific findings don't excuse his behavior toward his family. Einstein says goodness and greatness are not the same.

Einstein tells Margaret that he and Mileva had planned to keep Lieserl, but that he needed to wait until they could get married, but that before that could happen Mileva had a nervous breakdown and that Helene Savic had suggested Lieserl be adopted by an American family and he had agreed.

Margaret questions Einstein about an incident in which he allegedly threw his granddaughter down the stairs, which Einstein denies. She exclaims that she would never let her child come near him. When Einstein asks Margaret about her child, she explains that he has a high IQ and love for quantum physics, but that he cares more about science than he does about people. At fourteen, he has already been asked to attend Princeton, but she will not allow him to go so he will not meet Einstein and think of him as a role model.

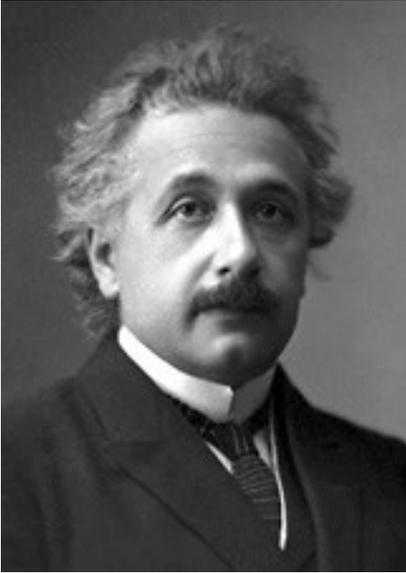
After further debate, Einstein tells Margaret the truth about her adoption. He told Mileva she would have to give up the child. He notes that his best work happened when he was alone and says that having children stopped him from achieving anything greater. Margaret leaves.

Later, Einstein finds Margaret waiting for a train. He gives her back papers belonging to her son which she had left in his study, with corrections. He assures her that Princeton will withdraw their offer and recommend her son to two different well respected universities. He presents Margaret with a gift – his father's compass. Margaret appreciatively tells Einstein her son's name is Abe, coincidentally the same as Einstein's grandfather. Einstein wonders if coincidence is simply God's way of remaining anonymous.



Dennis Bateman as Albert Einstein in Relativity at Taproot Theatre. Photo by Eric Stuhau.

Albert Einstein



Albert Einstein
(1879 - 1955)

Albert Einstein was born at Ulm, in Württemberg, Germany, on March 14, 1879. Six weeks later the family moved to Munich, where he later on began his schooling at the Luitpold Gymnasium. Later, they moved to Italy and Albert continued his education at Aarau, Switzerland and in 1896 he entered the Swiss Federal Polytechnic School in Zurich to be trained as a teacher in physics and mathematics. In 1901, the year he gained his diploma, he acquired Swiss citizenship and, as he was unable to find a teaching post, he accepted a position as technical assistant in the Swiss Patent Office. In 1905 he obtained his doctor's degree.

During his stay at the Patent Office, and in his spare time, he produced much of his remarkable work and in 1908 he was appointed Privatdozent in Berne. In 1909 he became Professor Extraordinary at Zurich, in 1911 Professor of Theoretical Physics at Prague, returning to Zurich in the following year to fill a similar post. In 1914 he was appointed Director of the Kaiser Wilhelm Physical Institute and Professor in the University of Berlin. He became a German citizen in 1914 and remained in Berlin until 1933 when he renounced his citizenship for political reasons and emigrated to America to take the position of Professor of Theoretical Physics at Princeton. He became a United States citizen in 1940 and retired from his post in 1945.

At the start of his scientific work, Einstein realized the inadequacies of Newtonian mechanics and his special theory of relativity stemmed from an attempt to reconcile the laws of mechanics with the laws of the electromagnetic field. He dealt with classical problems of statistical mechanics and problems in which they were merged with quantum theory: this led to an explanation of the Brownian movement of molecules. He investigated the thermal properties of light with a low radiation density and his observations laid the foundation of the photon theory of light.

In his early days in Berlin, Einstein postulated that the correct interpretation of the special theory of relativity must also furnish a theory of gravitation and in 1916 he published his paper on the general theory of relativity. During this time he also contributed to the problems of the theory of radiation and statistical mechanics.

In the 1920s, Einstein embarked on the construction of unified field theories, although he continued to work on the probabilistic interpretation of quantum theory, and he persevered with this work in America. He contributed to statistical mechanics by his development of the quantum theory of a monatomic gas and he has also accomplished valuable work in connection with atomic transition probabilities and relativistic cosmology.

After his retirement he continued to work towards the unification of the basic concepts of physics, taking the opposite approach, geometrisation, to the majority of physicists.

Einstein's researches are, of course, well chronicled and his more important works include *Special Theory of Relativity* (1905), *Relativity* (English translations, 1920 and 1950), *General Theory of Relativity* (1916), *Investigations on Theory of Brownian Movement* (1926), and *The Evolution of Physics* (1938). Among his non-scientific works, *About Zionism* (1930), *Why War?* (1933), *My Philosophy* (1934), and *Out of My Later Years* (1950) are perhaps the most important.

Albert Einstein received honorary doctorate degrees in science, medicine and philosophy from many European and American universities. During the 1920's he lectured in Europe, America and the Far East, and he was awarded Fellowships or Memberships of all the leading scientific academies throughout the world. He gained numerous awards in recognition of his work, including the Copley Medal of the Royal Society of London in 1925, and the Franklin Medal of the Franklin Institute in 1935.

Einstein's gifts inevitably resulted in his dwelling much in intellectual solitude and, for relaxation, music played an important part in his life. He married Mileva Maric in 1903 and they had a daughter and two sons; their marriage was dissolved in 1919 and in the same year he married his cousin, Elsa Löwenthal, who died in 1936. He died on April 18, 1955 at Princeton, New Jersey.

http://www.nobelprize.org/nobel_prizes/physics/laureates/1921/einstein-bio.html

Additional Characters



*Helen Dukas
with Albert Einstein*

Helen Dukas

(1896 – 1982), was Albert Einstein's personal secretary for 28 years.

Originally from the same home town as Albert's second wife Elsa, Helen started working for Einstein while he was still in Germany in 1927 and immigrated with him to America in 1933. Upon Elsa Einstein's death in

1936, Helen would become arguably Albert's most trusted companion. She was fiercely loyal and protective of him, managing his household and his person affairs. After his death in 1955, Einstein bequeathed his books and personal papers to her and she worked diligently for the remaining 27 years of her life organizing, archiving and publishing his works, acting as the primary author and guardian of his legacy.

She was the author of two books about Einstein: *Albert Einstein: Creator and Rebel* (Viking Press, 1972) and *Albert Einstein, the Human Side* (Princeton University Press, 1979). She also collaborated on the release of *The Collected Papers of Albert Einstein* (Princeton University Press, 1987) through which history learned about Albert's first child, Lieserl.

Margaret Harding - Journalist

Margaret presents herself as a reporter from *The Jewish Daily* newspaper, seeking an interview with Albert Einstein to learn more about his relationships with his various family members. She asks him several probing questions throughout the play.

What tactics does she use to get Einstein to open up to the questions she wants answered?

What methods seem to work the best?

How To Be a Good Journalist

Tone: Your job as a reporter is to report facts and the opinions of others and to leave your own opinions out of the story. The term for introducing your own opinion into a story is called editorializing – try not to do this!

Multiple Sources: The more people you talk to, the better the article. You can use direct quotes or paraphrase what someone says, but always remember to identify who says what.

5W, 1H: Always answer the who, what, why, where, when, and how of the news article.

Lead: The opening of a story, usually a summary of the most important information.

Headline: A title or attention grabber above the body of an article. The author of the story usually does not write the headline.

Angle: A particular point of view or way of looking at a subject.

Fact-checking: Checking that your facts are correct. Amy, Aymee, and Amie are all pronounced the same way and can be easily misspelled. Look up the names of specific people and places and anything else you are presenting as fact to be sure you are stating the truth.

<https://www.teachervision.com/journalism/basic-journalism>

Bibo, The African Grey Parrot



For More Information about African Gray Parrots visit:

<https://lafeber.com/pet-birds/species/african-grey-parrot/>

The African grey parrot is one of the most talented talking/mimicking birds on the planet, giving it quite a reputation among bird enthusiasts.

Quick Facts

- They love to have fun
- They are very gentle
- Color: Gray
- Size: Medium
- Lifespan: 30+ years
- Sounds: Vocal communicator
- Interaction: Highly social



The African Grey Parrot is native to Central Africa, including Ivory Coast, Congo and Tanzania

SETTING/PLACE



General Information about Princeton, County of Mercer, New Jersey

Princeton covers an area of 18.1 square miles in the heart of central New Jersey. It is composed of the former Township of Princeton and Borough of Princeton which consolidated effective January, 2013 and is now known as Princeton. The population of Princeton is approximately 30,000.

A substantial portion of the property of Princeton University lies within the borders of Princeton as does the property of the Institute for Advanced Study. Other well-known educational institutions within Princeton are the Hun School, the Princeton Day School, and the Stuart Country Day School of the Sacred Heart.

While no major arteries directly touch Princeton, it is dissected by US Highway Route 206; and there is ready access to US Highway Route 1, the New Jersey Turnpike, the Garden State Parkway and Amtrak and New Jersey Transit which provide direct rail services to New York and Philadelphia.

In general, Princeton is an open semi-wooded community of diverse housing, including substantial and moderate homes and a highly recognized affordable housing program and is an example of sound suburban development. There is also one shopping center, several other shopping areas of smaller size, some office research and services areas and a large amount of preserved open space.

Recreation facilities are numerous and provide community recreation facilities including a large pool complex, tennis and paddle tennis courts, athletic playing fields and various parks and playgrounds. Numerous programs and activities are provided through the Recreation Department.

<http://www.princetonnj.gov/P-profile.html>

The Institute for Advanced Study (IAS) in Princeton, New Jersey, in the United States, is an independent, postdoctoral research center for theoretical research and intellectual inquiry founded in 1930 by American educator Abraham Flexner, together with philanthropists Louis Bamberger and Caroline Bamberger Fuld. Flexner's guiding principle in founding the Institute was the pursuit of knowledge for its own sake. There are no degree programs or experimental facilities at the Institute. Research is never contracted or directed; it is left to each individual researcher to pursue their own goals. Established during the rise of European fascism, the IAS played a key role in the transfer of intellectual capital from Europe to America and soon acquired a reputation at the pinnacle of academic and scientific life—a reputation it has retained.

<https://www.ias.edu/>



Einstein in his home office.

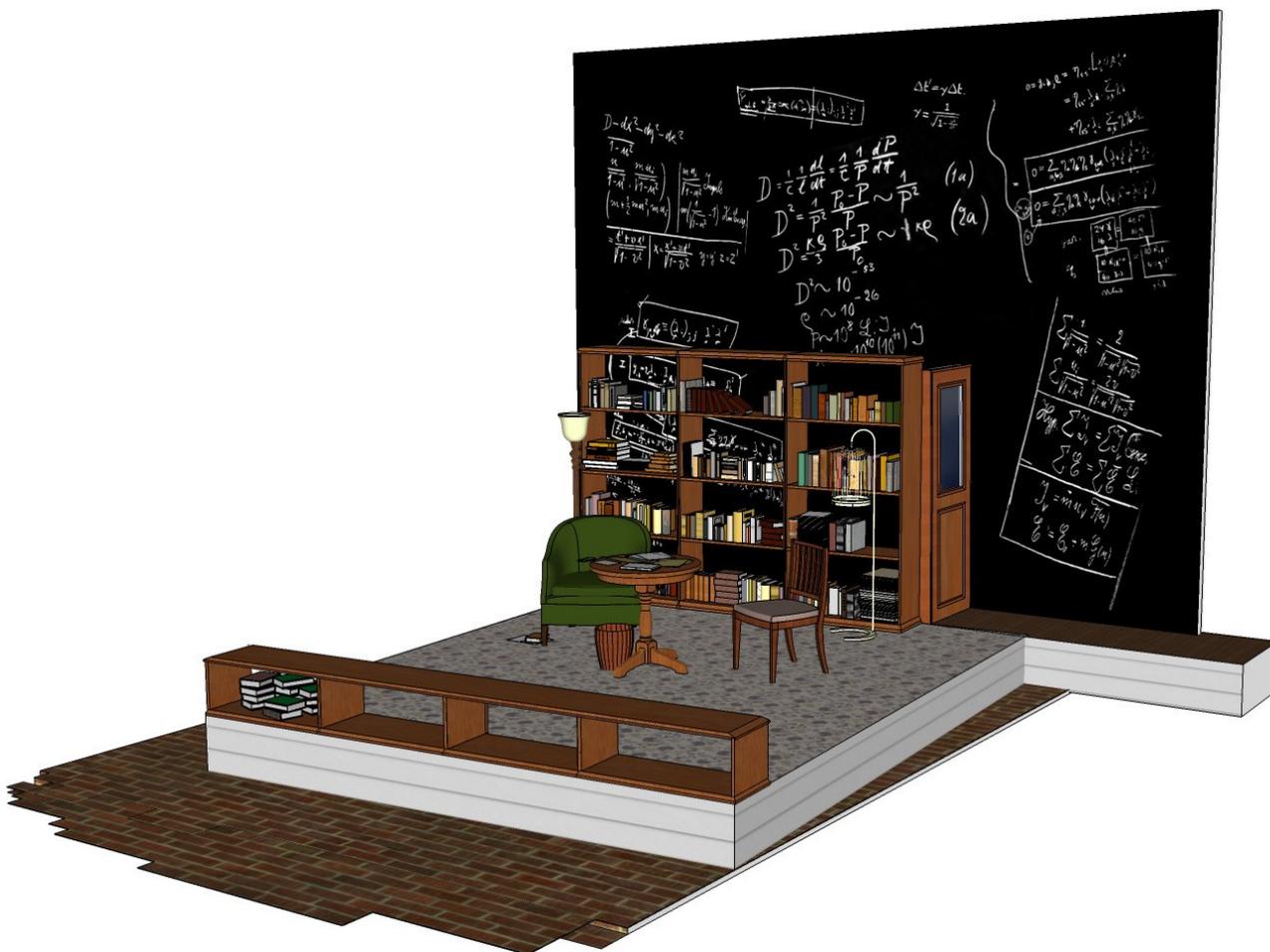


*Einstein's office at
The Institute for Advanced Study.*

SETTING/PLACE

In a novel or a short story the setting is usually established by the author's description indicating time and place. At most theatrical productions the program will briefly list the setting and time period of the play, but after that it's up to the set designer to create a visual representation of the location that the story is set. A good set designer will create a set that gives the audience clues about the story even before the actors come on stage.

What can you guess about the setting (location and/or time period) of this play by looking at the set design below?



Set Design by
Mark Lund.

COSTUMES

Authors of novels or short stories will often include character descriptions as part of the story. In a play, the costume designer is responsible for creating the first impression of a character. As soon as an actor walks out on stage you can guess something about their character.

**Are they old or young? Are they rich or poor?
Are they from another time period or dressed in modern clothes?**



Costume Design by
Sarah Burch
Gordon.

Other Scientists Referenced in *Relativity*



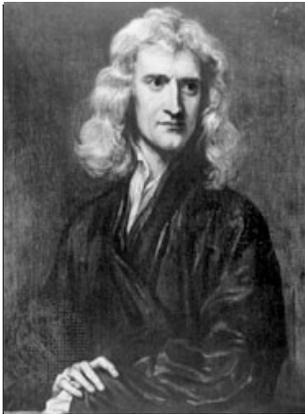
Nicolaus Copernicus
(1473 - 1543)

- Prussian Renaissance and Reformation era mathematician and astronomer.
- Formulated the model of the universe that placed the sun in the center, rather than Earth



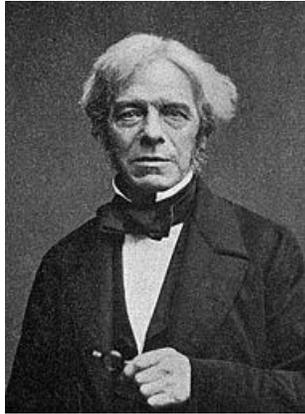
Johannes Kepler
(1591 - 1630)

- German mathematician, astronomer and astrologer.
- Best known for his laws of planetary motion
- Provided the foundation for Isaac Newton's theory of universal gravitation.



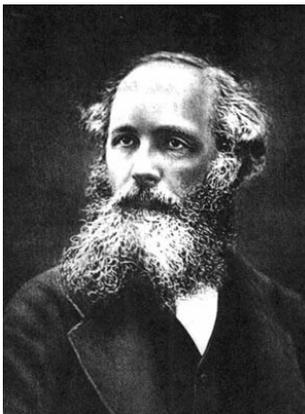
Isaac Newton
(1642 - 1727)

- English mathematician, astronomer and physicist.
- Laid the foundation of classical mechanics.
- Shares credit for developing the infinitesimal calculus.
- Made the first theoretical calculation of the speed of sound.



Michael Faraday
(1791 - 1867)

- English Scientist.
- Studied electromagnetism and electrochemistry.
- Established the concept of the electromagnetic field
- Revealed an underlying relationship between magnetism and rays of light.



James Maxwell
(1831 - 1879)

- Scottish Physicist, Mathematician
- Developed the classical theory of electromagnetic radiation.
- Linked electricity, magnetism, and light as manifestations of the same phenomenon.



Neil Bohr
(1885 - 1962)

- Danish physicist, philosopher and promoter of scientific research
- Foundational contributions to understanding atomic structure and quantum theory
- Recieved the Nobel Prize in Physics in 1922.



J. Robert Oppenheimer
(1904 - 1967)

- American theoretical physicist and professor
- Credited with being the "father of the atomic bomb"
- After World War II, he became director of the Institute for Advanced Study in Princeton, New Jersey.

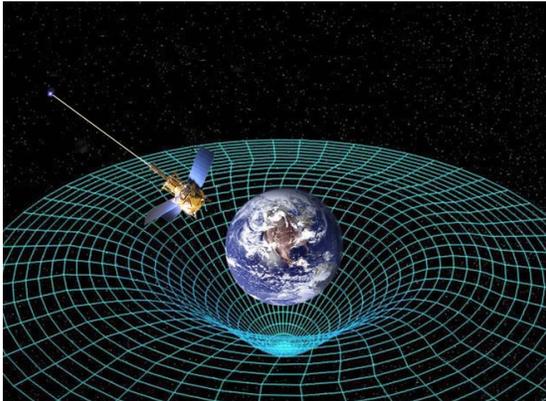


Wolfgang Pauli
(1904 - 1967)

- Austrian-born Swiss and American theoretical physicist
- Pioneer of quantum physics.
- Received the Nobel Prize in Physics in 1945 for his "decisive contribution through his discovery of a new law of Nature, the exclusion principle or Pauli principle".

Relativity

From Space.com



Einstein's theory of general relativity predicted that the space-time around Earth would be not only warped but also twisted by the planet's rotation. Gravity Probe B showed this to be correct.

In 1905, Albert Einstein determined that the laws of physics are the same for all non-accelerating observers, and that the speed of light in a vacuum was independent of the motion of all observers. This was the theory of special relativity. It introduced a new framework for all of physics and proposed new concepts of space and time. Einstein then spent 10 years trying to include acceleration in the theory and published his theory of general relativity in 1915. In it, he determined that massive objects cause a distortion in space-time, which is felt as gravity.

The tug of gravity: Two objects exert a force of attraction on one another known as "gravity." Sir Isaac Newton quantified the gravity between two objects when he formulated his three laws of motion. The force tugging between two bodies depends on how massive each one is and how far apart the two lie. Even as the center of the Earth is pulling you toward it (keeping you firmly lodged on the ground), your center of mass is pulling back at the Earth. But the more massive body barely feels the tug from you, while with your much smaller mass you find yourself firmly rooted thanks to that same force. Yet Newton's laws assume that gravity is an innate force of an object

that can act over a distance. Albert Einstein, in his theory of special relativity, determined that the laws of physics are the same for all nonaccelerating observers, and he showed that the speed of light within a vacuum is the same no matter the speed at which an observer travels. As a result, he found that space and time were interwoven into a single continuum known as space-time. Events that occur at the same time for one observer could occur at different times for another. As he worked out the equations for his general theory of relativity, Einstein realized that massive objects caused a distortion in space-time. *Imagine setting a large body in the center of a trampoline. The body would press down into the fabric, causing it to dimple. A marble rolled around the edge would spiral inward toward the body, pulled in much the same way that the gravity of a planet pulls at rocks in space.*

Experimental evidence: Although instruments can neither see nor measure space-time, several of the phenomena predicted by its warping have been confirmed.

Gravitational lensing: Light around a massive object, such as a black hole, is bent, causing it to act as a lens for the things that lie behind it. Astronomers routinely use this method to study stars and galaxies behind massive objects. Einstein's Cross, a quasar in the Pegasus constellation, is an excellent example of gravitational lensing. The quasar is about 8 billion light-years from Earth, and sits behind a galaxy that is 400 million light-years away. Four images of the quasar appear around the galaxy because the intense gravity of the galaxy bends the light coming from the quasar. Gravitational lensing can allow scientists to see some pretty cool things, but until recently, what they spotted around the lens has remained fairly static. However, since the light traveling around the lens takes a different path, each traveling over a different amount of time, scientists were able to observe a supernova occur four different times as it was magnified by a massive galaxy. In another interesting observation, NASA's Kepler telescope spotted a dead star, known as a white dwarf, orbiting a red dwarf in a binary system. Although the white dwarf is more massive, it has a far smaller radius than its companion. *"The technique is equivalent to spotting a flea on a light bulb 3,000 miles away, roughly the distance from Los Angeles to New York City," Avi Shporer of the California Institute of Technology said in a statement.*

Changes in the orbit of Mercury: The orbit of Mercury is shifting very gradually over time, due to the curvature of space-time around the massive sun. In a few billion years, it could even collide with Earth.

Frame-dragging of space-time around rotating bodies: The spin of a heavy object, such as Earth, should twist and distort the space-time around it. In 2004, NASA launched the Gravity Probe B (GP-B). The precisely calibrated satellite caused the axes of gyroscopes inside to drift very slightly over time, a result that coincided with Einstein's theory. *"Imagine the Earth as if it were immersed in honey," Gravity Probe-B principal investigator Francis Everitt, of Stanford University, said in a statement. "As the planet rotates, the honey around it would swirl, and it's the same with*

Relativity

From Space .com

space and time. GP-B confirmed two of the most profound predictions of Einstein's universe, having far-reaching implications across astrophysics research."

Gravitational redshift: The electromagnetic radiation of an object is stretched out slightly inside a gravitational field. *Think of the sound waves that emanate from a siren on an emergency vehicle; as the vehicle moves toward an observer, sound waves are compressed, but as it moves away, they are stretched out, or redshifted.* Known as the Doppler Effect, the same phenomena occurs with waves of light at all frequencies. In 1959, two physicists, Robert Pound and Glen Rebka, shot gamma-rays of radioactive iron up the side of a tower at Harvard University and found them to be minutely less than their natural frequency due to distortions caused by gravity.

Gravitational waves: Violent events, such as the collision of two black holes, are thought to be able to create ripples in space-time known as gravitational waves. In 2016, the Laser Interferometer Gravitational Wave Observatory (LIGO) announced that it found evidence of these tell-tale indicators. In 2014, scientists announced that they had detected gravitational waves left over from the Big Bang using the Background Imaging of Cosmic Extragalactic Polarization (BICEP2) telescope in Antarctica. It is thought that such waves are embedded in the cosmic microwave background. However, further research revealed that their data was contaminated by dust in the line of sight. "Searching for this unique record of the very early universe is as difficult as it is exciting," Jan Tauber, the European Space Agency's project scientist for the Planck space mission to search for cosmic waves, said in a statement. LIGO spotted the first confirmed gravitational wave on September 14, 2015. The pair of instruments, based out of Louisiana and Washington, had recently been upgraded, and were in the process of being calibrated before they went online. The first detection was so large that, according to LIGO spokesperson Gabriela Gonzalez, it took the team several months of analyzation to convince themselves that it was a real signal and not a glitch. "We were very lucky on the first detection that it was so obvious," she said during at the 228 American Astronomical Society meeting in June 2016. A second signal was spotted on December 26 of the same year, and a third candidate was mentioned along with it. While the first two signals are almost definitively astrophysical—Gonzalez said there was less than one part in a million of them being something else—the third candidate has only an 85 percent probability of being a gravitational wave. Together, the two firm detections provide evidence for pairs of black holes spiraling inward and colliding. As time passes, Gonzalez anticipates that more gravitational waves will be detected by LIGO and other upcoming instruments, such as the one planned by India. "We can test general relativity, and general relativity has passed the test," Gonzalez said.

For more in depth articles and video as well as a better viewing of the below image:
<https://www.space.com/17661-theory-general-relativity.html>

More Interesting Facts about Albert Einstein

Einstein was awarded the 1921 Nobel Prize for Physics, but did not receive the award until the following year due to anti-Semitic campaigns within the Nobel committee.

Einstein was a member of the NAACP and served as co-chair of the ACAL (American Crusade Against Lynching).

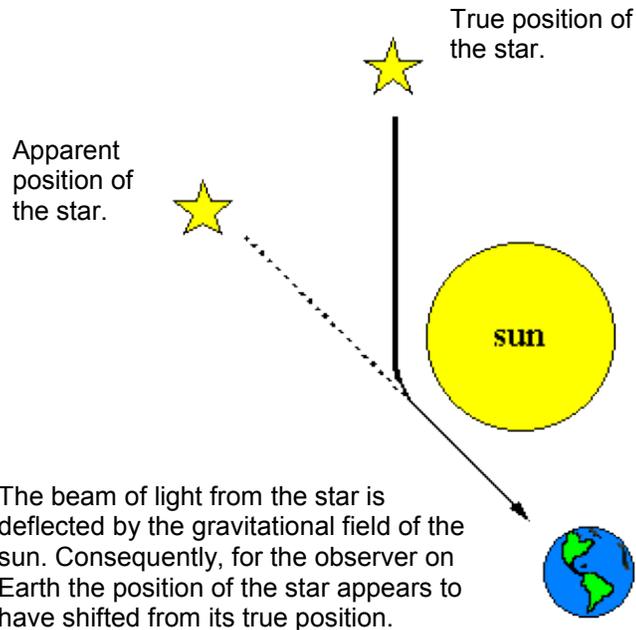
In 1952 the Prime Minister of Isreal offered to nominate Einstein as the President of Israel.

In 1999 Time Magazine named Einstein their Person of the Century.

Forbes Magazine listed Einstein as 9th in their list of Top Earning Dead Celebrities of 2016.

TRY IT AT HOME!

Albert Einstein discovered that gravity can bend light. In the figure below, you can see that the trajectory of the light omitted from the distant star is altered by the extreme gravitational mass of the sun. Therefore, to the observer on Earth, the star appears in a different position than it's actual location.



Fun fact:

It was only during a total solar eclipse, similar to the one that we recently experienced in August, that this part of Einstein's theory was able to be tested. The scientists could see the stars come out during the eclipse and observe the displacement of their apparent position due to gravity of the sun as it passed.

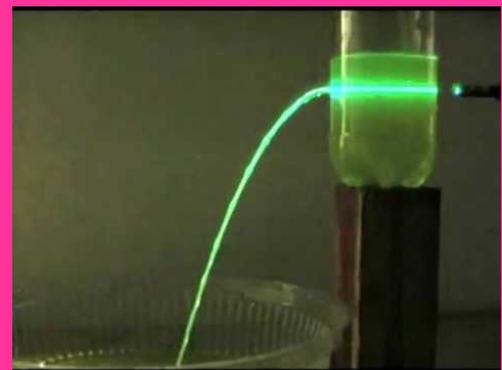


An eclipse projector set up behind Taproot Theatre during the August 21, 2017 solar eclipse.

See for yourself how light can bend!



All of what we can see is based on light either being absorbed by or bounced off of an object. All you have to do to see differences in the way light travels is to dip a drinking straw into a glass of water. You will see the direct line of the straw distorted by the water. That's because the light bouncing off the straw is travelling faster as it passes through the thinner density of the air than it is as it passes through the thicker density of the water. The straw appears to be in two different places at the same time!



To see how gravity can bend light, simply poke a small hole in a bottle of water and shine a light (preferably a laser, but a flashlight works too) to that hole and watch as the light bends with the water. As the pull of gravity moves the flow of the water, the light beam travels with it. If you put your hand in the water you will see the point of the light beam.

POST-SHOW REFLECTION QUESTIONS

The Question: What is the difference between a good person and a person who does great things? In what ways are the two concepts different? In what ways are they the same?

1. How would you respond if you suddenly found out you had another family member you didn't know about?
2. How much did you know about Albert Einstein before you saw this play? Does the play alter any of your opinions about him?
3. What are some of your own greatest achievements? What challenges did you experience trying to reach your goals?

POST-SHOW REFLECTION

After the show, write a short review of the performance using the space below. Include what you liked and didn't like while identifying the main conflicts of the play and its plot structure.

TAPROOT THEATRE COMPANY

MISSION STATEMENT

Taproot Theatre Company creates theatre experiences to brighten the spirit, engage the mind and deepen the understanding of the world around us while inspiring imagination, conversation and hope.

ABOUT US

Taproot Theatre Company was founded in 1976 by six friends, five of them graduates from Seattle Pacific University. From its humble beginnings as a touring group, the company is now Seattle's largest mid-size theatre company. Today Taproot Theatre serves over 150,000 people annually throughout the Pacific Northwest with its Jewell Mainstage season, Isaac Studio Theatre season, Touring programs and Acting Studio.

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EDUCATION PROGRAMS

In-School Residencies & Workshops

- From drama games to acting classes to putting on a production, Taproot Theatre's residencies can range from several weeks to months, or an entire school year. Whether during the school day or after school as an enrichment program, let Taproot's trained teaching artists introduce a whole new world to your students.
- Our theatre arts professional will visit your classroom for a workshop that will inspire and excite your students. They will develop basic acting skills and explore non-theatre curriculum using theater as a medium.

Touring Productions

- The Road Company – performing plays for elementary and secondary schools focusing on issues such as bullying prevention, substance abuse, and friendship skills.
- Family oriented productions and improv comedy for churches, clubs, office parties and other groups.

Camps & Classes

- Taproot Theatre Company's Acting Studio is a year-round instructional program for theatre artists of all ages and experience levels. We are devoted to the wholeness of the artist with the goal of creating a nurturing environment to help each student develop his or her unique gifts.

NEXT ON THE JEWELL MAINSTAGE:



Wed, Nov 29 at 10:00am
Age Recommendation: 12+

A Civil War Christmas: An American Musical Celebration

by Paula Vogel
Music by Dayrl Waters

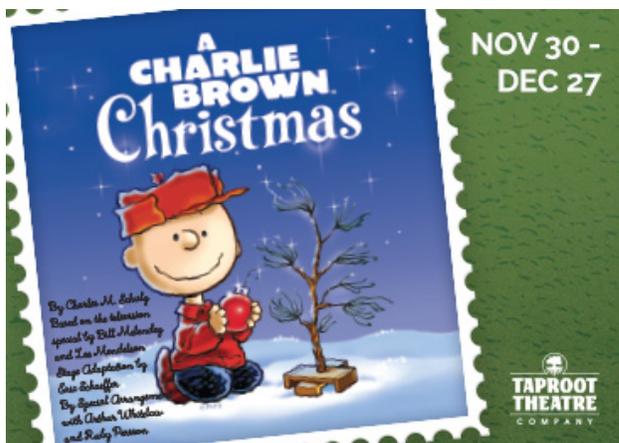
It's a bitterly cold Christmas Eve on the banks of the Potomac River where the lives of abolitionists, assassins, soldiers, enslaved and free are woven together in an American tapestry. In their darkest hour, when peace seems impossible. The promise of Christmas breaks through despair in this musical celebration of compassion and hope by Pulitzer Prize-winning playwright Paula Vogel.

Limited Availability

RESERVE TICKETS FOR YOUR SCHOOL GROUP NOW!

**For group pricing and to make a reservation contact
IsaiahC@taproottheatre.org or 206.781.9708.**

COMING SOON TO THE ISAAC STUDIO



Tickets to ***A Charlie Brown Christmas*** go on sale October 3.

A Charlie Brown Christmas

By Charles M. Schulz
Based on the television special
by Bill Melendez and Lee Mendelson
Stage Adaptation by Eric Shaeffer
By Special Arrangement with
Arthur Whitelaw and Ruby Perrson

This delightful family-friendly favorite is back to spread holiday cheer! Charlie Brown is depressed by the never-ending commercialism surrounding the holidays. Thankfully, Linus is there to help him find the true meaning of Christmas in this musical adaptation of the cartoon classic.