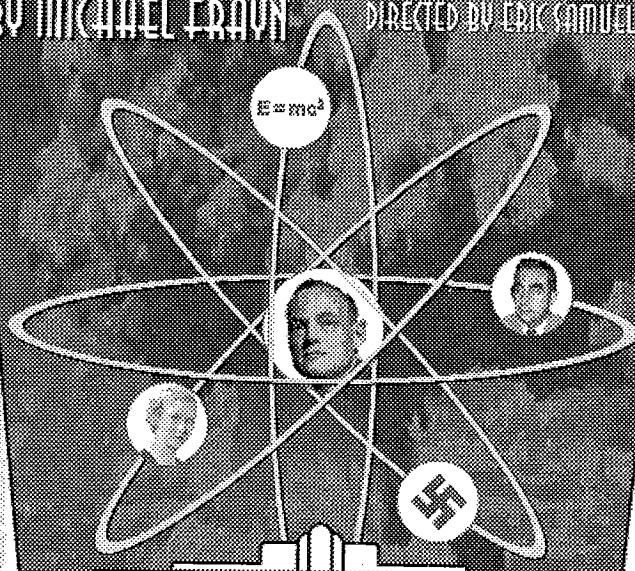


MARGETTS THEATRE

COPENHAGEN

BY MICHAEL FRAYN

DIRECTED BY ERIC SAMUELSEN



Set/Scenic Designer
Ward Wright

Costume Designer
Priscilla Han

Lighting Designer
Frank Falls

MAY 12-29, 7:30 P.M.



DEPARTMENT OF THEATRE AND MEDIA ARTS
May 26-June 12, 7:30 pm • Pardoe Theatre

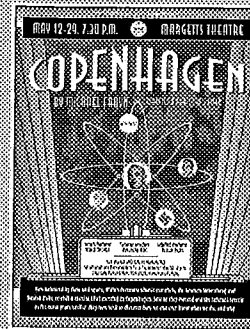
PAPA MARRIED A MORMON

BY JOHN D. FITZGERALD
Adapted & Directed by Rodger Sorensen

ADENVILLE, UT - When Tom Fitzgerald, an Irish-Catholic newspaperman, marries Tena, the daughter of Mormon immigrants, they wonder how their young family can survive in a polarized community. Set against the backdrop of a small mining settlement in nineteenth-century Utah, this Utah premiere will be presented in a charming storytelling production that highlights this best-selling novel's warm and inviting family saga.

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Costume Designer:
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COMING SOON



COPENHAGEN

BY MICHAEL FRAYN



DIRECTED BY ERIC SAMUELSEN

CAST

Niels Bohr David Morgan
Margarethe Bohr Heidi D. Reed
Heisenberg Logan Miller

PRODUCTION CREW

Director Eric Samuelsen
Dramaturg Shelley Graham
Production Stage Manager Bonnie Ann King
Scenic Designer Ward Wright
Costume Designer Priscilla Hoa
Make-up and Hair Designer Priscilla Hoa
Lighting Designer Frank Fults
Sound Designer Nathan Webster
Assistant Director Brian Blossil
Assistant Stage Manager Rebecca Hixson

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UNCERTAINTY, AND TRUTH

BY ERIC SAMUELSEN

Michael Frayn's *Copenhagen* is a marvelous play, a rich and multi-layered text, agilely leaping from quantum mechanics to twentieth century politics, from metaphysical speculation to historical whodunit, from the most intriguing intellectual inquiry to an emotion-laden examination of three wounded souls in a moment of crisis.

In rehearsal, we've sometimes felt as if we would barely finish unpacking and unraveling the mysteries at the heart of one line or exchange of lines, when the next line would offer even greater perplexities. And we're theatre people at heart and sadly out of our league when wrestling with issues relating to physics, history, and politics. Yet we came to love the challenges of this play. I speak for all of us when I say that the weeks we spent in rehearsal with *Copenhagen* count among the most joyful professional experiences of our lives.

We're thrilled to be performing *Copenhagen*. After all, we are a university theatre. Surely a play rooted in the life of the mind, in the most profound questions of science and philosophy, should be precisely the sort of play we should produce.

Or is it? Because at the heart of the play is uncertainty. Werner Heisenberg was not just a scientist who placed uncertainty at the heart of quantum mechanics. He was also a man whose

motivations, actions, and moral standing must all be seen as unclear and ambiguous.

And we're at BYU, a school sponsored by the LDS Church, amidst a culture that celebrates, above all things, certainty. "We have also a more sure word of prophesy," wrote Peter in his second general epistle (1:19), and we hear it echoed from every Church pulpit: "I do not just believe. I know." And so, yet another paradox. How can a play about uncertainty resonate so powerfully among a cast of LDS actors? Why does this play, rooted in paradox and irony, feel so truthful? How can a culture that rejects relativism learn to embrace, as we've come to believe it must, relativity?

During our rehearsal process, we were wonderfully blessed to enjoy an evening's discussion with two brilliant scientists: Hollis Johnson, from the Indiana University Department of Astronomy and a fellow at the Niels Bohr Institute, and Kent Harrison, from the Brigham Young University Department of Physics, by way of Los Alamos. The goal of our discussion with them was for our cast to understand the principles of physics explored in the play, at least enough to convey them accurately and clearly.

One member of our company mentioned Orson Pratt's own scientific speculations, and Professor

Johnson quickly dispelled any misconceptions we may have had about Pratt's contributions. It became clear that, for these fine scientists, the key to understanding Orson Pratt was not that he was somehow ahead of his time scientifically, as current folk myth would have it. The key was that he was a scientist at all. Orson Pratt, James E. Talmage, and Henry B. Eyring today, were and are men who felt no tension between an apostolic calling and the life of the mind, who believed, and knew, that cultivating a humble spirit of inquiry and fostering intellectual curiosity could be and were compatible with and perhaps even integral to their faith.

And at the heart of that spirit of inquiry, that curiosity, is uncertainty. There are surely things we all know to be true. There are also many things we do not know. And "the light of Christ" is the same light "that quickeneth [our] understandings" (D&C 88: 7, 11).

Above all, *Copenhagen* is a play filled with love. Frayn talks of "this most precious meanwhile," a time where "our children and our children's children" climb the trees in Faelled Park, a meanwhile that exists today, and that just might have been preserved for us today, by a ten-minute conversation in *Copenhagen* in 1941. Come with us to *Copenhagen*, and help us celebrate its celebration of

glorious, troubling, testing mortality, defined by the uncertainty and ambiguity and paradox our Older Brother called "agency," and Father Lehi called "opposition in all things." We approach it falteringly, uncertainly, but we hope we're able to present it with love.

SPECIAL THANKS TO

Professor Hollis Johnson,
Indiana University
department
of astronomy,
and
Niels Bohr Institute.

Professor Kent Harrison,
Brigham Young University
department
of physics,
and
Los Alamos.

SCIENCE, SUBJECTIVITY, AND CIRCULARITY

BY SHELLEY GRAHAM

The "flowing wholeness" that Briggs and Peat describe is the conclusion of many scientists who have spent their lives studying the physical organization of the universe. In *Copenhagen*, that view is re-presented through circularity in script and staging and a continuous reiteration of the question at hand: Why did Werner Heisenberg come to visit Neils Bohr in September 1941?

Though the dialogue explores the bounds of objectivity in scientific experiment, the characters themselves embody those theories for an audience to observe. The scientific principles that lie, ostensibly, at the core of this play—quantum mechanics, uncertainty, complementarity—are, in fact, mirrors of the humanistic ideals of perception, memory, and friendship, which lie at its heart.

Many scientists would argue that it is unfair to clarify scientific principles using a human metaphor, but Heisenberg himself drew a parallel between theatre and science: "We have to remember that what we observe is not nature itself but nature exposed to our method of questioning. In the drama of life we are ourselves both

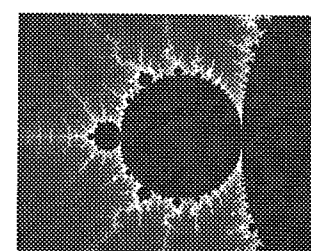
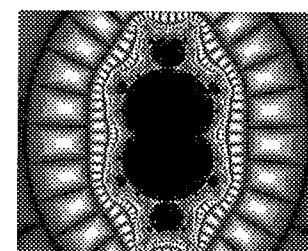
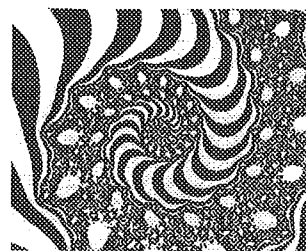
The universe must be fundamentally indivisible, a "flowing Wholeness" in which the observer cannot be essentially separated from the observed.

—JOHN BRIGGS AND
DAVID F. PEAT

players and spectators." Throughout the play the audience is reminded that there is uncertainty in their perception of the events as they take place, each time the discussion is iterated (not, in fact, repeated) in the world of memory.

That the scientists' lives ironically parallel and embody the theories they were discovering is not necessarily a unique observation made by Frayn (biographers of both Bohr and Heisenberg have noted the coincidences). But *Copenhagen* uniquely resolves to offer no resolution to major historical and ethical questions. Each time the meeting begins, Heisenberg introduces it to the audience in terms of familiar sensory perception: the autumn air is "chilly" and he hears and feels the "crunch" of the gravel outside the Bohr's home.

Each time, the audience as observers of the meeting are given facts and descriptions (from the characters' memories) and each time, even in the last lines of the play, the observation leads in a circumlocution back to the original question, Why? And perhaps more importantly, the audience can only answer that question in the illumination of evidence provided by each of the characters: the comple-



mentarity, so to speak, of their perspectives. How is it possible for matter to behave as both a particle and a wave, simultaneously? How is it possible for Heisenberg to come to Copenhagen during Germany's occupation of Denmark as both a German physicist working on the atomic bomb and a friend of the Jewish Bohr?

The two elements of the paradox must not be considered exclusively of one another, but simultaneously (and without certainty). The impossibility of separation in these two "facts"—and the circular structure of the play that allows us to review them several times and from different perceptions—bring *Copenhagen* to an illustration of the "flowing wholeness" that describes the nature of truth. Robert King suggests that the play shows "how muddled our ways of knowing inevitably are, and how foolish our attempts to apply abstract 'truths' to human affairs." Perhaps, however, it shows just the opposite. In attempting to apply mathematical truths to human affairs, Bohr, Margrethe, and Heisenberg examine the bonds between friend and family.

And the audience recognizes that the most important understanding of truth and knowledge must come, as Heisenberg says at the end of the show, "in this most precious meanwhile."

Quantum mechanics, defined reductively, is the branch of physics that describes the behavior of particles at the subatomic level ✧ (A "quantum" is described as a tiny energy packet, or a particle of electromagnetic radiation) ✧ Bohr's new model of the atom (with electrons restricted to orbits rather than suspended in a cloud around the nucleus) made possible the theories of uncertainty and complementarity ✧ These two theories form the basis of the Copenhagen Interpretation of quantum mechanics, and suggest that the fact of observation changes the nature of the thing being observed (uncertainty), and that the dual nature of even the most basic elements causes them to be observed only in relation to one another (complementarity) —

CAST AND COMPANY

CAST

LOGAN MILLER (Werner Heisenberg), Vallejo, CA, is a senior studying acting. Recent credits include Valeri in BYU's *Archipelago*, Torvald Helmer in BYU's *A Doll House*, and George Boleyn in the BYU-Hawaii production of *Lady in Waiting*.

DAVID MORGAN (Neils Bohr), Payson, UT, is associate professor in the acting program. At the Castle Theatre Festival he played the title role in *Hamlet* and Angelo in *Measure for Measure*. He has also played Don Quixote in *Man of la Mancha* and Corporal in *Caucasian Chalk Circle*.

HEIDI P. REED (Margrethe), Sierra Vista, AZ, is an MA student in theatre critical studies and has earned a BA in theatre arts studies. Recent credits include Mom in *A Raven in My View*, Estifania in *Rule a Wife and Have a Wife*, and Ann Putnam in *The Crucible*.

PRODUCTION CREW

BRIAN BLOSIL (Assistant Director), Orem, UT, is a junior in theatre media arts.

FRANK FULTS (Lighting Designer), Houston, TX, is a senior in sociology. He is the master electrician for the Pardoe Theatre.

SHELLEY GRAHAM (Dramaturg) Aiken, SC, received her BA from BYU in Theatre Education and is currently finishing her MFA in Theatre Education.

Continued on page 20



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Continued from page 18

ishing her Master's thesis in drama-turgy, also at BYU. She was most recently seen as Kinume in BYU's pro-duction of *Rashomon* and served as the dramaturg for *The Three Sisters* and *Archipelago*.

PAISCILLA HAO (Costume Designer) is finishing up her MFA in costume design. Her work was recently seen in the BYU production of *Misalliance*, in a Jackson Hole, WY, production of *Annie Get Your Gun*, and in *Light of the World*. In 1998 she was awarded for make-up work in BYU's *Romeo and Juliet*.

REBECCA HIXSON (Assistant Stage Manager), Sandy, UT, is a sophomore in theatre studies. Recent acting cred-its include roles in *A Raven in My View*, and Meg in *Crimes of the Heart*.

Her work as stage manager was seen in *Barefoot in the Park*, and she wrote, directed, and acted in "10 x 10," a play in the FreeSpace Ten Minute Play Festival.

DONNIE ANNE KING (Production Stage Manager), American Fork, UT, is in theatre arts studies. Her work was seen in *The Winter's Tale*, *The Crucible*, and *Yellow China Bell*.

ERIC SAMUELSEN (Director), Bloomington, IN, received his PhD from University of Indiana and is now an associate professor at BYU. He directed *Smart Single Guys* and *Rule a Wife and Have a Wife*. He also wrote and directed *The Way We're Wired* for the Nauvoo Theatrical Society.

WARD WRIGHT (Set Designer), Orem, UT, is the technical director at BYU.

This production is entered in the Kennedy Center American College Theater Festival (KC/ACTF). The aims of this national theater education are to identify and promote quality in college-level theater production. To this end, each production entered is eligible for a response by a regional KC/ACTF representative, and certain students are selected to participate in KC/ACTF programs involving awards, scholarships, and special grants for actors, playwrights, designers, and critics at both the regional and national levels.

Productions entered on the participating level are eligible for inclusion at the KC/ACTF regional festival and can also be considered for invitation to the KC/ACTF national festival at the John F. Kennedy Center for the Performing Arts in Washington, D.C., in the spring of 2004.

Last year, more than 1,000 theater productions and 19,000 students participated in KC/ACTF nationwide. By entering into this production, our department is sharing the KC/ACTF goals to help college theater grow and to focus attention on the exemplary work produced in college and university theaters across the nation.

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