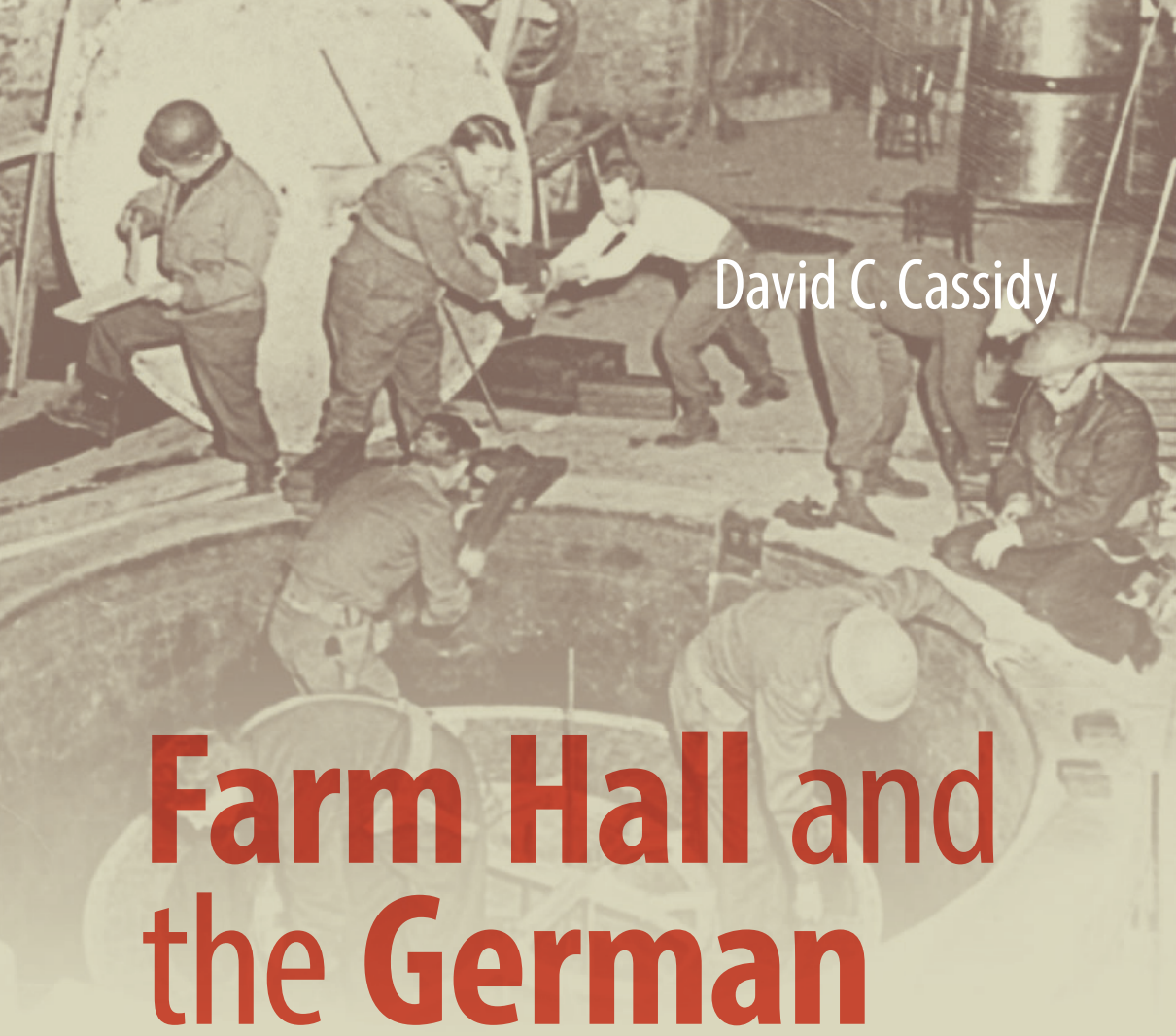

David C. Cassidy

# Farm Hall and the German Atomic Project of World War II

## A Dramatic History

Springer

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Farm Hall 1945 (NARA, Farm Hall Reports, courtesy of AIP ESVA)

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# Contents

# Abbreviations

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| AIP | American Institute of Physics, College Park, Maryland |
| ESVA | Emilio Segrè Visual Archives, at the AIP |
| NARA | US National Archives and Records Administration, College Park, Maryland |
| NBLA | Niels Bohr Library and Archives, at the AIP |

# Introduction

As the Allied armies fought their way into Germany following the D-Day invasion in 1944, two teams of German nuclear scientists hastened to complete their work. The first, led by the world-renowned quantum physicist Werner Heisenberg, had evacuated war-torn Berlin for the quiet hills of southwestern Germany. There he and his colleagues made their last attempt to achieve a self-sustaining nuclear reactor. A second, smaller reactor project, headed by applied physicist Kurt Diebner and supported in part by the German Army and the SS, had relocated to the Thüringen Forest farther north.

Both German efforts labored under the conviction that they were far ahead of those they called the "Anglo-Americans" in nuclear matters. If they could not build a reactor, let alone a nuclear explosive, they thought, then neither could the Anglo-Americans. Little did they know that the Manhattan Project, one of the largest technological research projects ever launched, was at that time feverishly preparing the atomic bombs to be dropped on Germany (until Germany surrendered in May) and on Japan in August 1945.

As they raced to build the atomic bombs, the Anglo-Americans likewise believed the Germans to be far ahead. Not knowing how far the Germans had progressed, the commander of the Manhattan Project, Major General Leslie R. Groves, dispatched into Europe a secret American science intelligence unit, the Alsos Mission, with Dutch-American physicist Samuel A. Goudsmit as its scientific head. (*álsos* is Greek for "grove.") Later joined by British agents and officers, its mission was to follow close behind the advancing Allied forces—first in Italy, then in Germany—to locate and disable German nuclear fission research, and to capture and detain the scientists involved, along with their papers and equipment. Before either German project could succeed in its quest for a reactor, the first step toward a bomb, Goudsmit and his mission, backed by a combat engineer battalion, swept in and captured the scientists during the last days of the war in Europe. They brought the captives, together with their documents, to Alsos headquarters in Heidelberg for interrogation, then held them for two months in a series of prisoner-of-war camps in France and Belgium. Their equipment was dismantled and sent to an American base near Paris.

The Anglo-Americans selected ten of their captive nuclear scientists for long-term detention in British custody, keeping them off the Continent and away from the Russians, the French, and any curious reporters. Among the captives were Nobel Prize winners Werner Heisenberg, Max von Laue, and Otto Hahn (who received his prize while in custody), as well as Kurt Diebner, Walther Gerlach, and Carl Friedrich von Weizsäcker. On July 3, 1945 the British brought the selected scientists to an English country manor, Farm Hall, a MI-6 safe house near Cambridge. The house and nearby airport had been used during the war in support of clandestine operations behind enemy lines. The scientists remained at Farm Hall until the British returned them to Germany exactly six months later, on January 3, 1946, and released them within the British occupation zone in northwestern Germany.

Unknown to the scientists, British agents recorded their conversations while at Farm Hall using hidden microphones installed throughout the house and grounds. The bilingual agents transcribed and translated selected portions of the conversations for their intelligence interest. They worked under the direction of British Army Major T.H. Rittner and, when Rittner became ill, under his deputy, Captain P.L.C. Brodie. Rittner or Brodie periodically transmitted reports of the scientists' conversations, including extensive excerpts from the English translations and some original German passages, to General Groves and to British authorities. The top-secret reports, amounting to 153 pages, remained classified until 1992, when British and American officials jointly released them to the public. Unfortunately, the original recordings were destroyed when the agents reused the shellacked metal discs on which the recordings were made. No additional transcriptions of the recorded conversations have been found.

The Farm Hall captivity occurred during a profound turning point in history, from conventional warfare to the nuclear age and from brutal dictatorship and the Holocaust to the nuclear arms race and the Cold War clash between East and West. It is a well-researched—and widely written about—period of contemporary history and history of science, and yet, regarding Germany's nuclear program, it remains one of the most controversial, periodically engendering heated debates concerning the German scientists' relative lack of success and their motives, aims and rationales for working on nuclear fission under the Hitler regime at war.

The scientists' six-month captivity at Farm Hall also encompassed the challenging periods before, during, and after the atomic bombings of Japan. With most of Europe in ruins, the economy and infrastructure in collapse, entire populations on the verge of starvation, the scientists experienced these events as if on another planet, ensconced in the isolated comfort and care of Farm Hall. The situation is even more extraordinary in that we have the actual verbatim conversations of the scientific participants on the German side as these events are unfolding. We can follow in the transcripts of their apparently unguarded conversations their reactions to the German defeat; their anguished response to the news of the atomic bombs; their dashed illusions of progress beyond Allied nuclear efforts; their difficult adjustment to the early nuclear age; their concerns for their reputations; and their concerns for their families left behind in war-torn Germany. How had the

Americans and British done it? Why had they themselves made such little progress in comparison? Why are they being held? What will happen to them? How can they explain their war-time work and their meager progress to their countrymen, to their former enemies, and to themselves? While a historical account can offer well-reasoned, source-based answers to these questions, a theatrical play allows us to explore behind the events, to experience with the characters their encounter with these momentous events, with the issues they raised, and with each other. It is at the intersection of the historical events with the human qualities, motives, and emotions of real people that both the drama and the history come alive, enabling us to encounter and appreciate both from new and richer perspectives.

Since the end of World War II, a great many works about the German atomic project and its leading figures have appeared. Among the first was Goudsmit's 1947 memoir of his mission and his assessment of the scientists, simply titled *Alsos*. That book and nearly every subsequent major work or release over the years has unleashed another round of fervent controversy—from Robert Jungk's *Brighter than a Thousand Suns* (1956/58), to General Groves's memoir *Now It Can Be Told* (1962), to the release and publication of the Farm Hall transcripts (1992), to Michael Frayn's popular award-winning play *Copenhagen* (1998). Intense feelings and convictions have obviously become associated with many of these issues, while the dramatic elements of mounting conflict and crisis have pervaded the Farm Hall experience from beginning to end.

The publication of the Farm Hall transcripts in 1992, with their many pages of verbatim dialogue, encouraged several writers to attempt to turn them into a dramatic play. Others, such as myself, became entangled in the historical controversies revived by the transcripts and by Michael Frayn's subsequent play *Copenhagen*. It was a play that explored the related topics of Heisenberg's motives for working on the German project and for visiting Niels Bohr in Copenhagen in 1941 at a crucial moment for the German effort. Although the story of the capture, internment, and release of the Farm Hall scientists is certainly full of historical and dramatic potential, the task of creating a Farm Hall play proved more difficult than it appeared, especially for those new to this genre. Fifteen years later, in 2007, a colleague, Brian Schwartz, approached me during a meeting of the American Physical Society with the observation that no one had yet succeeded in creating a Farm Hall play. He suggested that I give it a try. I knew the history well, he argued, and, with the dialogue at hand, I thought it would not be difficult. How wrong I was! Although I had earlier dabbled in creative writing, I had no idea how to write a play. Given the highly controversial nature of the subject, combined with the required attention to the necessary dramatic elements, it was no easy task to write a successful first play on this subject. With the help of the dramaturge and director Prof. Jean Dobie Giebel at Hofstra University and the encouragement and advice of the New York theatre company Break A Leg Productions and its artistic director Teri Black, as well as the advice of colleagues, audiences, and actors, *Farm Hall* gradually came to life. Following several staged readings, Break A Leg Productions presented the play's world premiere production during the Midtown International Theatre Festival held in New York in July 2014. The play received two festival

award nominations for Best Supporting Actor, which went to one of the play's nominees.

In 2013 the Nora Theatre Company in Cambridge, Massachusetts presented *Operation Epsilon* by Alan Brody, a play on the same subject which took a somewhat different approach.

In 2015 the AIP Niels Bohr Library and Archives received from the family of photographer Malcolm Thurgood, a former US Army sergeant assigned to the Alsos Mission, a collection of his photographs taken during his assignment with the mission. These now constitute a valuable supplement to the Goudsmit Papers, held by the AIP, and a welcome visual aid to this and other works of all sorts on these events

This book grew out of an invitation to the author to present the 2014 Lyne Starling Trimble Lecture, sponsored by the AIP Center for History of Physics, on a topic of my choice in the history of physics during a public meeting of the AIP in Santa Fe, New Mexico. Then in the throes of *Farm Hall*, I made the tentative suggestion that, instead of a lecture, I could present the play as a staged reading with local actors, followed by a discussion with the author and actors. To my pleasant surprise the AIP bravely accepted. Prof. Peter Pesic at St. John's College in Santa Fe kindly arranged for students from the college to direct and present a reading of the play, and Brian Schwartz worked tirelessly as producer to arrange publicity and other matters. The students presented a public reading of the play at the New Mexico School for the Deaf on May 7, 2014. Its success, owing above all to the truly outstanding student company, encouraged Frederick Dylla, then AIP director, to propose a publication that would bring together, in what would be a nearly unique work, the three diverse genres of history, drama, and photography: the one-act play *Farm Hall*; a historical survey of the events in the play and their background; and a selection of photographs from the newly acquired Thurgood collection, along with other related photos and archival materials. Together, these three genres illustrate how each can provide very different, yet complementary, perspectives on these events, bringing them into richer and deeper focus than individually possible. This book is also intended to provide readers with an introduction to the wealth of information available in a wide range of formats and genres on the German nuclear project and on the atomic scientists at the dawn of the atomic age.

# Farm Hall

It is the end of World War II in Europe. German nuclear scientists are held captive in the English country manor Farm Hall as atomic bombs are on their way to Japan. Based on a true story.

*Farm Hall* was developed in collaboration with Break A Leg Productions, New York. It was originally presented in July 2014 at the June Havoc Theater in New York, as part of the Midtown International Theatre Festival, and directed by Gerald vanHeerden

Cast

Samuel A. Goudsmit . . . . . Kevin Hauver
Werner Heisenberg . . . . . Keith Herron
Carl Friedrich von Weizsäcker . . . . . James Reade Venable
Major T.H. Rittner . . . . . Terrence Keene
Walter Gerlach/BBC Announcer . . . . . Scott Glascock
Kurt Diebner . . . . . Terrence Montgomery
Otto Hahn . . . . . Miller Lide
Voice of Doom . . . . . Bruce Barton
Elisabeth Heisenberg . . . . . Susan Richard

In memory of Scott Glascock, a great actor and a wonderful person.

Miller Lide won Best Supporting Actor during the Festival for his role as Otto Hahn. Terrence Montgomery was also nominated for that award for his role as Kurt Diebner.



D.C. Cassidy, *Farm Hall and the German Atomic Project of World War II*,
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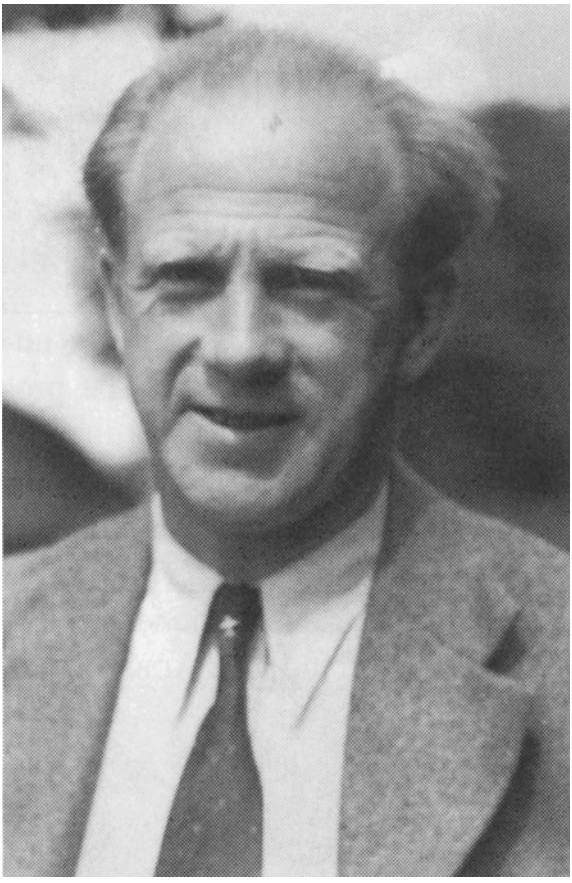
## Characters in Order of Appearance

The approximate pronunciations of names are indicated.

SAMUEL A. GOUDSMIT (pronounced Gaud-smit, his preferred pronunciation). Dutch-American physicist who was a friend and colleague of Heisenberg during the glory days of quantum mechanics in the 1920s. He is now scientific head of the Alsos Mission that captured the German nuclear scientists and halted their fission research. (See photo, page 62)



Werner Heisenberg at Farm Hall (NARA, Farm Hall Reports, courtesy of AIP ESVA)

WERNER HEISENBERG (Verner Hi-zin-berg). Charismatic, youthful Nobel Prize-winning quantum physicist, scientific head of the main German uranium project.