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Theatre Review

On Knowledge, Uncertainty and the Politics of Morality

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Copenhagen. (1998). Written by Michael Frayn. Performed by the Northern Lights Theatre Production Company, at the Auckland Performing Arts Centre, June 2012.

This play was built on a real event that happened in 1941 when a well-known German scientist, Werner Heisenberg, visited his erstwhile teacher, mentor and friend, the Danish scientist, Niels Bohr, in Copenhagen, where they had worked together in the 1920s. Both of them were world famous Nobel Laureates in Physics – Bohr in 1922 for his contributions to understanding atomic structure and quantum mechanics, Heisenberg in 1932 for the creation of quantum mechanics – and had made discoveries cementing their fame forever. We may speculate that their reunion might have been long awaited and could have been stimulating both for science as well as their personal relationship. There are no written records about their encounter, and the hypothetical setting of the play takes place after both men had died, but it is reported that, following a walk the two men took to discuss something important in private, Bohr was furious. The only other person who could have given a clue to what occurred was Professor Bohr's wife, although she was not witness to this part of their discussion.

Frayn's play presents a number of variations of what might have happened and what was discussed. So why is it that such imagined dialogues between these two professors was such an exciting topic for a play?

The answer, in part, is the context. The Second World War was underway. The battle of Stalingrad, which was the turning point of the war, had not yet happened, but the German forces were facing heavy losses on all fronts. Hitler was pushing hard to reach the oil fields in the Caucasus as his army would not be able to fight without fuel. The more the Germans pushed into the Soviet Union, the more desperate his efforts became to find new weapons.

Heisenberg was the head of the atomic research in Germany and Bohr was an expert in nuclear fission. Heisenberg was not a Nazi but was a significant contributor to the Nazi's

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nuclear research. Bohr was Jewish, and as such he was persona non grata, to put it mildly, as far as the Nazis were concerned, and in 1943, he escaped from occupied Denmark to England and then to the USA from potential persecution.

So what did these two people have in common to discuss? The play is built around this question. They had a common interest in physics, so surely they spoke about that. Although their scientific and personal views differed in some areas, this gave them the opportunity for a heated debate. They may have had sweet memories of the past when one was the student and the other was the teacher, so reminiscing about those times may also have brought the two protagonists together again. Did they also discuss politics? Both lived under Nazi rule (Germany had occupied Denmark in April 1940), though the two lived differently with this situation. Heisenberg had a comfortable life, while Bohr's work and life was in danger. Did they discuss the possibility of creating nuclear weapons? Did Heisenberg want to do this? Did he ask for technical or moral advice from his old mentor? Did he warn his respected professor of the danger he was facing? Or, more ominously, did he ask for help to build the atomic bomb?

There is no answer to these questions. What is known is that they had a fateful meeting during the war and neither of them wanted to talk about it afterwards, ever again. They did not meet after the war, probably as a consequence of that meeting.

The play presents many underlying moral dilemmas. Among them, it asks what is more important: the professional commitment at the price of compromising human values, or a firm moral stand and sacrificing positions and research resources? The three characters are very complex. The two men were fiercely competitive: friends, opponents, scientists and fallible human beings.

Interestingly, the play's focus is a known historic meeting and the impossibility of knowing what truly happened. It is thus a dramatic staging of the tensions between Heisenberg's "uncertainty principle" and Bohr's "complementarity theory", that is, how all knowledge is relative and so therefore fundamentally unknowable. The play is set within the subjective world of a no-man's land which enjoys the benefits of the metaphysical world of souls that have passed into the next world, while their subjective creations of their former physical world are involved with the fundamental building blocks of earthly matter.

Bion's theory of thinking (1962) and, the ideas expressed in his paper "Attacks on linking" (1959) came to mind in the context of watching the play: how beta elements of individual memory and perceptions could be subjected either to mental processing to create meaning, or to the loss and destruction of links to meaning. Bion's ideas seemed relevant to the play's structure and the themes portrayed through the artifice of reuniting the two key characters in their famous meeting at Bohr's house and with the certainty of knowing that whatever unfolded that night will always be utterly elusive and unknowable.

The role of the third character, Margrethe, Bohr's wife, is crucial to the play for several reasons: she is positioned as the third person, the one who purportedly bore witness to some of the interactions between the protagonists that night. In this position, her character functions to drive the action and is able to comment on the interactions and relationship dynamics between the two scientists. She is given the power of reflecting upon the unseen and hidden motives of the men. In this way she is empowered as the one who can take in the raw data, or beta elements, and process them to create the alpha function of a coherent narrative about what might have unfolded during the meeting and the reasons for it. It is Margrethe who makes the suggestion to replay three different versions of what might have happened that night, to find a clearer vision of the truth underlying the event. The mists of time create a

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symbolic cloud chamber (the experimental platform for Heisenberg's discovery) in which the beta elements of memory and perception can be seen as split-off particles of knowing and experiencing that are impossible to pinpoint and therefore to link.

As a result, there are no absolute truths available, only more questions, and it is left to the audience to make their own determinations as to the meaning – and the moralities – of the individual men and the nature of their encounter. The audience are positioned as witnesses to the different particles of memory, historical and scientific knowledge. It is left to each of us to process and make meaning of the elements. Just as with a newborn infant, everything is possible, and yet genetics and the parental capacity for reverie make certain developmental pathways probable, and in this way we create an alpha function of our own meaning from the beta elements presented to us in this brilliant play.

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