

# Mellem Spøg og Alvor: Personal Recollections about Niels Bohr

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The anecdotes I shall add to the portrait painted by John Wheeler may seem insignificant, irrelevant and even irreverent. Yet, I cherish these recollections because they help me to recreate the image of the great physicist and the generous man that was Niels Bohr.

Many speakers and writers on Bohr have emphasized the speed of his thinking, and no one will deny that he was very quick to grasp the essence of a problem and that he was often the first to see a solution, or at least the road along which a solution might be found. However, what impressed me almost more was the intensity of his untiring concentration, his looking at a problem from every side, and his unrelenting search for the best possible expression of his thoughts. Now these things are not always compatible with speed.

He might be so absorbed by a problem that he became forgetful of the world around him and he later told with great relish how, during a voyage across the Pacific, he had gone ashore—I believe it was at Hawaii—had almost missed his boat and was taken to task by an employee of the shipping line with the words: “you are the foggiest person I’ve ever come across.” (So in our next evening performance we compared Bohr to that other great traveller, Phileas Fogg.)

His methodically looking at every side of a problem, invaluable in research, was not always helpful in daily life. I was told that when he was supervising the installation of central heating in his institute and it should be decided where to put a vertical tube, he saw so many pro’s and con’s of any position that the mechanic on duty finally cried out in despair: “now can’t we put that damn tube at least somewhere.”

Bohr’s constant search for a better formulation did not lead to speed either. His special way of “dictating” a paper has often been described. Let me give just one example. I once assisted him in writing a report on candidates for a chair in theoretical physics. He wanted to praise one paper in particular and tried out a whole range of adjectives: the paper became successively beautiful, important and so on. Since the report was written in Danish the exercise certainly contributed to my knowledge of Danish laudatory terms. Det var et smukt arbejde ... et dygtigt arbejde ... et vigtigt arbejde ... et udmærket arbejde ... et fremragende arbejde ... et værdifuldt arbejde ... Finally he settled for “et lødigt arbejde.” And so it

went all the way. I believe it was the ninth version of the report—but it may have been the eight or the tenth—that was finally sent off.

Harald Bohr, himself a onetime star on the Danish national soccer team said about Niels as a goalkeeper: “Joh, Niels var saamænd udmærket, men han var for langsom til at gaa ud,” (Niels was in a way excellent, but he was too slow in running out) and I can imagine Niels standing there, rapidly going over the relative advantages and disadvantages of staying in his goal or running out to intercept a ball ... and coming too late. Now whether this is a correct interpretation or not, Bohr certainly liked sports and, more generally, the outdoors: skiing, yachting, and long walks in the country. When he wanted to go for a walk weather played no role. I remember an occasion when a strong wind was blowing icy rain into our face and I heard him mutter “velsignet vejr” (blessed weather). His maxim “when you see a tram you can catch it” led to many a quick sprint along Blegdamsvej. He liked felling trees and chopping wood and showed me with some pride a woodpile he had built and which looked “almost professional”. He was interested in simple crafts, could watch with interest the digging of a well, for instance, and was a pretty good handyman himself. He was also interested in the physics of simple phenomena: the reflection of street lanterns in a ripply watersurface, the skipping of flat pebbles on water—playing ducks and drakes is the correct English term, I believe—or a pingpong ball dancing on a fountain. Piet Hein in a beautiful poem describes that he wants to return to earth: “... og være en gylden og tyndvægget bold/ som stiger og daler og stiger igen/ og staar paa en springvands straale.” (... to be a golden and thinwalled ball, that rises and sinks and rises again, standing on a fountain jet.) I am convinced there was a connection between Bohr’s understanding of simple phenomena and his outstanding gift to elucidate profound questions by careful analysis or simple examples.

Bohr had a special sense of humour. He always insisted on the element of playfulness that should enter in serious scientific studies. In many of his witty remarks there appears some indication of his ideas on complementarity. Contrary to what is often told the defense of a horseshoe over a door: “of course as a scientist one does not believe in such things, but they say it helps even if you don’t believe in it” did not refer to a horseshoe of his own, but he liked telling the story. I think it originated somewhere in the United States. But perhaps we should not be sticklers for historical accuracy. Bohr himself often quoted a German saying—I believe but am not certain that its originator was von Kármán—“beim Erzählen einer wahren Geschichte soll man sich nicht zu sehr vom Zufall der Wirklichkeit beeinflussen lassen.” (When telling a true story one should not be overinfluenced by the haphazard occurrences of reality.)

Bohr did not care much for detective stories. When Conan Doyle in later life became interested in occult phenomena Bohr explained to me

“You and I, we know that we know next to nothing about impostors and how to unmask them. Neither does Conan Doyle, but he thinks he does, which puts him at a great disadvantage.”

Somewhat related is his facetious theory of gambling on the stock exchange. The total sum of profits and losses must be zero. Therefore if you play completely at

random you must on the average break even (apart from handling costs). Some people have real inside information; they make profits. So who are the losers? Those who *think* they know something about the stock market. Very characteristic was his favourite distinction between a simple truth and a deep truth. A simple truth is a statement the opposite of which is a fallacy. A deep truth is a statement the opposite of which is also a deep truth.

Let me now tell something about his comments on motion pictures. When I was in Copenhagen, in 1929 and 1930, Gamow, Landau and I often went to the movies together and we had a preference for lurid westerns. Sometimes Bohr came with us and his criticism was always remarkable and had often some connection with his ideas on observation. For instance after one particularly silly Tom Mix film he said:

“I did not like that picture; it was too improbable. That the scoundrel kidnaps the pretty heroine is all right, that happens all the time. That the bridge collapses when their carriage is going over it is improbable, but not at all impossible... That the scoundrel is killed, while the heroine remains precariously suspended over the precipice is even more improbable, yet I am willing to accept it. I am even willing to accept that at that moment Tom Mix is coming by on his white horse to save her. But that at that moment there was also a man with a camera on the spot to photograph the whole scene, that is more than I can stand for.”

Finally I mention his famous theory of the advantages of defensive versus offensive shooting. In a movie called “The Black Rider” (Den sorte rytter) the hero always waited until his enemy drew a gun. Then he drew his and he was always a bit quicker. Bohr claimed that this was natural: reactions are faster than decisions, and in his case that proved to be true. We bought toy pistols to try it out, the type with paper tape carrying little explosive pellets. I described this whole affair in a piece of doggerel—in German—that was my contribution to the *Journal of Jocular Physics* published in 1935 on the occasion of Bohr’s fiftieth birthday. For a book of reminiscences I published a few years ago I made an English translation. Here it is:

We went to the flicks and Niels Bohr came along,  
 And we watched the Black Rider, a man bold and strong,  
 In a Western picture, where guns often bark,  
 But it’s always the hero who first hits his mark.  
 At the end of the movie Niels Bohr, deeply moved,  
 Set out to explain what the plot really proved.  
 “That was a good film,” I can still hear him say.  
 “There was really a ‘pointe’, it showed in what way  
 In a part of the world where all villains are armed  
 The innocent men are surviving unharmed.  
 In truth, there’s no reason for flutter or fear  
 If your purpose is pure and your conscience is clear.  
 When you’re facing a blackguard and he draws his gun  
 You quickly draw yours, shoot him down and you’ve won.  
 The scoundrel must make a momentous decision  
 And that interferes with his speed and precision,  
 But for the defendant there’s no such distraction,

Not a shadow of doubt can retard his reaction.  
So it's easy to shoot in advance of his shot;  
With his gun barely grasped he falls dead, on the spot.”  
We, arrogant youngsters, we ventured to doubt  
This thesis of Bohr and we wished to find out  
If really a deep psychological facet  
Of criminal law does make virtue an asset.  
So the three of us went to the centre of town  
And there at a gunshop spent many a crown  
On pistols and lead, and now Bohr should prove  
That in fact the defendant is quickest to move.  
Bohr accepted the challenge without ever a frown;  
He drew when we drew ... and shot each of us down.  
This tale has a moral, but we knew it before:  
It's foolish to question the wisdom of Bohr.

As I said, these may seem trifling anecdotes, but the moral that one should not doubt Bohr's wisdom applies to more serious things than shooting between gunmen in westerns.



