The Dangers of Certainty: A Lesson From Auschwitz By SIMON CRITCHLEY date published FEBRUARY 2, 2014 7:00 PM

As a kid in England, I watched a lot of television. There weren't any books in our house, not even the Bible. TV was therefore pretty important, omnipresent actually. Of course, most of what it delivered was garbage. But in 1973, the BBC aired an extraordinary documentary series called "The Ascent of Man," hosted by one Dr. Jacob Bronowski in 13 hour-long episodes. Each episode was what he called an "essay" and involved some exotic and elaborate locations, but the presentation was never flashy and consisted mostly of Dr. Bronowski speaking directly and deliberately to the camera.

Dr. Bronowski (he was always referred to as "Dr." and I can't think of him with any other, more familiar, moniker) died 40 years ago this year, at the relatively young age of 66. He was a Polish-born British mathematician who wrote a number of highly-regarded books on science, but who was equally at home in the world of literature. He wrote his own poetry as well as a book on William Blake.

He was a slight, lively, lovely man. Because it was the early '70s, some of his fashion choices were bewilderingly pastel, especially his socks, though on some occasions he sported a racy leather box jacket. He often smiled as he spoke, not out of conceit or because he lived in California (which, incidentally, he did, working at the Salk Institute in San Diego), but out of a sheer, greedy joy at explaining what he thought was important. But there was a genuine humility in his demeanor that made him utterly likeable.

"The Ascent of Man" (admittedly a little sexist now – great men abound, but there are apparently few great women), deliberately inverted the title of Darwin's 1871 book. It was not an account of human biological evolution, but cultural evolution — from the origins of human life in the Rift Valley to the shifts from hunter/gatherer societies, to nomadism and then settlement and civilization, from agriculture and metallurgy to the rise and fall of empires: Assyria, Egypt, Rome.

Bronowski presented everything with great gusto, but with a depth that never sacrificed clarity and which was never condescending. The tone of the programs was rigorous yet permissive, playful yet precise, and always urgent, open and exploratory. I remember in particular the programs on the trial of Galileo, Darwin's hesitancy about publishing his theory of evolution and the dizzying consequences of Einstein's theory of relativity. Some of it was difficult for a 13-year-old to understand, but I remember being absolutely riveted.

The ascent of man was secured through scientific creativity. But unlike many of his more glossy and glib contemporary epigones, Dr. Bronowski was never reductive in his commitment to science. Scientific activity was always linked to artistic creation. For Bronowski, science and art were two neighboring mighty rivers that flowed from a common source: the human imagination. Newton and Shakespeare, Darwin and Coleridge, Einstein and Braque: all were interdependent facets of the human mind and constituted what was best and most noble about the human adventure.

For most of the series, Dr. Bronowski's account of human development was a relentlessly optimistic one. Then, in the 11th episode, called "Knowledge or Certainty," the mood changed to something more somber. Let me try and recount what has stuck in my memory for all these years.

He began the show with the words, "One aim of the physical sciences has been to give an actual picture of the material world. One achievement of physics in the 20th century has been to show that such an aim is unattainable." For Dr. Bronowski, there was no absolute knowledge and anyone who claims it — whether a scientist, a politician or a religious believer — opens the door to tragedy. All scientific information is imperfect and we have to treat it with humility. Such, for him, was the human condition.

This is the condition for what we can know, but it is also, crucially, a moral lesson. It is the lesson of 20th-century painting from Cubism onwards, but also that of quantum physics. All we can do is to push deeper and deeper into better approximations of an ever-evasive reality. The goal of complete understanding seems to recede as we approach it.

There is no God's eye view, Dr. Bronowski insisted, and the people who claim that there is and that they possess it are not just wrong, they are morally pernicious. Errors are inextricably bound up with pursuit of human knowledge, which requires not just mathematical calculation but insight, interpretation and a personal act of judgment for which we are *responsible*. The emphasis on the moral responsibility of knowledge was essential for all of Dr. Bronowski's work. The acquisition of knowledge entails a responsibility for the integrity of what we are as ethical creatures.

Dr. Bronowski's 11th essay took him to the ancient university city of Göttingen in Germany, to explain the genesis of Werner Heisenberg's uncertainty principle in the hugely creative milieu that surrounded the physicist Max Born in the 1920s. Dr. Bronowski insisted that the principle of uncertainty was a misnomer, because it gives the impression that in science (and outside of it) we are always uncertain. But this is wrong. Knowledge is precise, but that precision is confined within a certain *toleration* of uncertainty. Heisenberg's insight is that the electron is a particle that yields only limited information; its speed and position are confined by the tolerance of Max Planck's quantum, the basic element of matter.

Dr. Bronowski thought that the uncertainty principle should therefore be called the principle of tolerance. Pursuing knowledge means accepting uncertainty. Heisenberg's principle has the consequence that no physical events can ultimately be described with absolute certainty or with "zero tolerance," as it were. The more we know, the less certain we are.

In the everyday world, we do not just accept a lack of ultimate exactitude with a melancholic shrug, but we constantly employ such inexactitude in our relations with other people. Our relations with others also require a principle of tolerance. We encounter other people across a gray area of negotiation and approximation. Such is the business of listening and the back and forth of conversation and social interaction.

For Dr. Bronowski, the moral consequence of knowledge is that we must never judge others on the basis of some absolute, God-like conception of certainty. All knowledge, all information that passes between human beings, can be exchanged only within what we might call "a play of tolerance," whether in science, literature, politics or religion. As he eloquently put it, "Human knowledge is personal and responsible, an unending adventure at the edge of uncertainty."

The relationship between humans and nature and humans and other humans can take place only within a certain play of tolerance. Insisting on certainty, by contrast, leads ineluctably to arrogance and dogma based on ignorance.

At this point, in the final minutes of the show, the scene suddenly shifts to Auschwitz, where many members of Bronowski's family were murdered.

It is, I am sure you agree, an extraordinary and moving moment. Bronowski dips his hand into the muddy water of a pond which contained the remains of his family members and the members of countless other families. All victims of the same hatred: the hatred of the other human being. By contrast, he says — just before the camera hauntingly cuts to slow motion — "We have to touch people."

The play of tolerance opposes the principle of monstrous certainty that is endemic to fascism and, sadly, not just fascism but all the various faces of fundamentalism. When we think we have certainty, when we aspire to the knowledge of the gods, then Auschwitz can happen and can repeat itself. Arguably, it has repeated itself in the genocidal certainties of past decades.

The pursuit of scientific knowledge is as personal an act as lifting a paintbrush or writing a poem, and they are both profoundly human. If the human condition is defined by limitedness, then this is a glorious fact because it is a moral limitedness rooted in a faith in the power of the imagination, our sense of responsibility and our acceptance of our fallibility. We always have to acknowledge that we might be mistaken. When we forget that, then we forget ourselves and the worst can happen.

In 1945, nearly three decades before "The Ascent of Man," Dr. Bronowski — who was a close friend of the Hungarian physicist Leo Szilard, the reluctant father of the atomic bomb — visited Nagasaki to help assess the damage there. It convinced him to discontinue his work for British military research with which he had been engaged extensively during the Second World War. From that time onward, he focused on the relations between science and human values. When someone said to Szilard in Bronowski's company that the bombing of Hiroshima and Nagasaki was science's tragedy, Szilard replied firmly that this was wrong: It was a human tragedy.

Such was Dr. Bronowski's lesson for a 13-year-old boy some 40 years ago. Being slightly old-school, I treated myself last Christmas to a DVD deluxe boxed set of "The Ascent of Man." I am currently watching it with my 10-year-old son. Admittedly, it is not really much competition for "Candy Crush" and his sundry other video games, but he is showing an interest. Or at least he is tolerating my enthusiasm. And of course beginning to learn such toleration is the whole point.

Reason and certainty