

David Leavitt, author of many books including *The Man Who Knew Too Much: Alan Turing and the Origins of the Computer*, gave the Bonnie and Vern L. Bullough Academic Convocation Address for Buffalo State College on Thursday, September 21, 2006. Below is the text of his speech.

It is a pleasure to have the opportunity today to speak to you about and, as it were, on behalf of the mathematician and computer scientist Alan Turing. Back in the 1930s, had someone told Turing that one day his name would be included on a list of great thinkers that included the likes of Jane Austen, Ludwig von Beethoven, Marie Curie, and Shakespeare, my hunch is that he would have been both astounded and bewildered. By nature he was a modest man, and though he recognized the vast implications of his discoveries, he never trumpeted his achievements. Geniuses are rarely any good at marketing themselves, and Turing—who often wore an old piece of rope as a belt—was no exception to this rule. Socially awkward and literal-minded to a fault, he put his energy into his work, and had none left over for self-promotion.

Until the mid-eighties, Turing's name was virtually unknown outside mathematical circles, and even today, if you bring up his name in conversation, he's likely to be remembered in one of four very distinct contexts. Indeed, what people know about Alan Turing tells you a lot about their own preoccupations and predilections.

For the historian of the Second World War, Turing is a hero: the architect of the machine and the method by means of which the Allies broke the German Enigma code, and, as such, one of the men and women to whom we owe our victory in that war.

For the historian of the computer, Turing is an icon: the unwitting inventor of a purely hypothetical "computational machine," known today as the "Turing machine," that is widely regarded as the forerunner of the modern computer.

For the historian of artificial intelligence, Turing is a groundbreaker: the first scientist to consider seriously the possibility of machine intelligence, and the creator of what we now call the "Turing test": a process for determining whether a machine can be said to "think."

Finally, for the historian of the gay and lesbian rights movement, Turing is a martyr: an openly gay man who was brutally persecuted and perhaps even driven to suicide because he would not hide his homosexuality.

But my intention today is neither to enumerate Turing's discoveries, nor to hymn his greatness. I leave those tasks to the professors who teach his work here at Buffalo State and other universities around the world.

Instead I want to make a plea—again, on Turing's behalf—for two kinds of tolerance, both of which, as we approach the seventh year of the new millennium, I see being threatened almost as ferociously as they were in the mid-fifties, when Turing died.

The first of these is tolerance of sexual difference. When Alan Turing was arrested in the early fifties, it was under the provisions of the Labouchere amendment—the so-called "blackmailer's charter"—drafted into law in England in 1885 and on the books until 1967. Under ordinary circumstances, conviction under the Labouchere amendment carried a sentence of two years hard labor; this was the sentence served by its most famous victim, the great Irish dramatist and poet Oscar Wilde. By 1952, however, the British courts had become sufficiently "enlightened" as to offer Alan Turing, in lieu of a prison term, the alternative of undergoing a therapy meant to cure him of his homosexuality. The therapy consisted of massive doses of estrogen in the form of injections; as a result, he was rendered impotent and grew breasts.

Turing's crime wasn't merely that he had an affair with another man; it was that he refused to hide that affair. Famously literal-minded, he reasoned that, if in his own view there was nothing wrong with homosexuality, then there was no good reason to be furtive. During World War II, for instance, his casual openness about his homosexuality surprised his colleagues at Bletchley Park, where he conducted much of his codebreaking work—and indeed, it was in all likelihood because he played such an important role in the codebreaking effort that the British government persecuted him so aggressively. The thinking seemed to be, in the wake of Guy Burgess's famous defection to Russia, that all gay men were by definition security risks, as vulnerable to blackmail as to seduction by enemy agents. In retrospect, this seems a laughable assumption in Turing's case, both because his loyalty to his government was absolute, and because the secret information he possessed—a method for breaking one particular code—had even by 1952 been rendered obsolescent. And what had rendered it obsolescent? The very machine Turing was responsible for bringing into the world: the computer.

Nonetheless the British secret service hounded Turing through his last years, until one morning his housekeeper found him dead in his bed. He had bitten into an apple dipped in cyanide, an apparent nod to the poisoned apple in his favorite movie, the Disney version of *Snow White and the Seven Dwarves*. He was forty-two years old.

His sad story should be remembered every time a government attempts to justify the persecution of its citizens on the grounds of national security.

The second plea that I want to make on Alan Turing's behalf is for the protection, within the academy, of research in the pure sciences. Right now, at the university where I teach, a battle is being fought between a faculty determined to protect those disciplines

that lie at the core of any liberal education—literature, languages, philosophy, mathematics—and an administration that can sometimes seem more interested in financial than in intellectual gain.

Of course, all universities want important discoveries to be made on their campuses, both because such discoveries bring prestige and because the patents attached to them bring cash.

And yet—to give but one example—is a cure for HIV more likely to be made by a scientist seeking a cure for HIV or by one engaged in pure research in the field of cellular biology?

To illustrate the important role the pure sciences play in fostering discovery, one need look no further than the case of Alan Turing. Early in his undergraduate career at Cambridge, Turing took a course from Professor Max Newman on the foundations of mathematics—a subject about as remote from the applied sciences as you can get. One day Newman was lecturing his students on topology—the branch of mathematics that deals with the formalization of such concepts as connectedness, convergence, and continuity—and he happened to mention the so-called *Entscheidungsproblem*, an unresolved problem in logic that he characterized, in a rather off-the-cuff way, as a matter of finding a "mechanical process" for testing the validity of any mathematical assertion.

Remember, now, that like most highly imaginative people, Turing was incredibly literal-minded.

Thus, when he set out to disprove the *Entscheidungsproblem*, he kept Newman's phrase in mind. *Mechanical process*. And what did the word "mechanical" imply in the industrial England of the 1930s? It implied a machine.

A year later, when Turing published his famous essay disproving the *Entscheidungsproblem*, he not only put at the very center of his argument the idea of a "universal machine"—a machine that could replicate any algorithm programmed into it—but proved that such a machine had to exist.

It seems as unlikely that at the time Turing had any idea that he was inventing the computer as that he would have come up with the idea had he been specifically asked to do so.

As much as Oscar Wilde himself, Alan Turing represents the best argument I can offer for protecting the core curriculum in our universities. I'm sure he would have been pleased to learn that at Buffalo State, at least, that curriculum is not merely being protected but used as the basis of an innovative and creative academic platform. And so it is, once again, on his behalf, and on my own behalf, and on behalf of all of us who believe that the ideals of a liberal education are worth fighting for, that I want to thank you today for paying this great man a tribute that would have mattered to him far more than any prize. You are teaching and studying his work, and for that, I can assure you, he would be grateful.