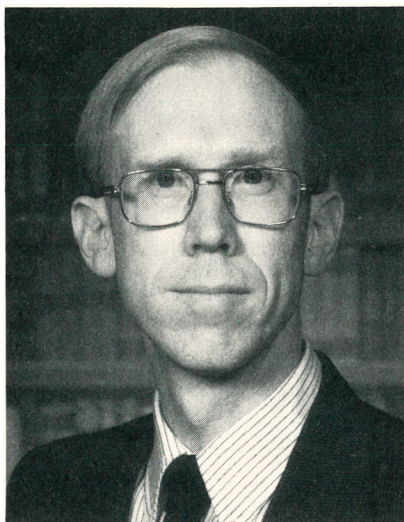




Thomas H. Johnson

from the United States Army with the rank of colonel—serving at the Military Academy in West Point, New York, as a professor of applied physics, director of the Scientific Research Laboratory and the associate dean for academic research. At the time of his death he was preparing to assume his new position as a professor of engineering and public policy at Carnegie Mellon University.

Tom's tragically truncated career was marked by high distinction as a military officer, research scientist, poet, academician, and trusted adviser on science and defense policy and on arms-control issues at the highest levels of government. A bare listing of his professional titles and activities cannot begin to convey Tom's very special value as a gifted individual and a national treasure.

In tribute to Tom, Secretary of Defense Dick Cheney said:

Tom was an exceptional person who gave of himself without reservation in the service of his country. His personal contributions in working with the Defense Science Board and on studies and projects that spanned all the diversity and technical depth of this department were great. Whether it was the Strategic Defense Initiative, high-energy lasers or nuclear weapons safety, Tom's leadership, keen scientific insight and ability to cut away bureaucratic impediments to progress truly made a difference for his country.

Those of us in the Department, including myself, who benefitted directly from Tom's contributions and who worked closely with him, are all struck by the tragedy of this loss.

This and other tributes, in particu-

lar that from Army Chief of Staff General Carl Vuono, attest to the value placed on Tom's work and advice by many civilian and military leaders. Through his judgment, commitment and especially his integrity, Tom earned the attention and respect of a generation of government leaders.

Following his graduation from West Point and his commissioning as a second lieutenant in 1965, Tom worked as a physicist at the Air Force Weapons Laboratory at Kirtland Air Force Base in New Mexico and at the Defense Atomic Support Agency (later called the Defense Nuclear Agency) in Washington, DC, studying nuclear weapons and their effects.

Subsequently he entered graduate school at the University of California, Davis, where he received his PhD in applied physics in 1974. His dissertation in computational plasma physics was written under the supervision of John Killeen at the Lawrence Livermore National Laboratory. As part of his thesis project he invented rapid computational techniques for determining magnetohydrodynamic equilibria in toroidal geometries. These techniques were used to design the Tokamak Fusion Test Reactor.

Following the receipt of his PhD Tom returned to Kirtland Air Force Base for two years as chief of the physics section of the weapons laboratory. His own research dealt with satellite communications and high-power gas lasers. He developed computational techniques for the solution of radiative transport coupled to multidimensional fluid motion. This work was applied to nuclear weapons effects related to anti-ballistic-missile defense and communications phenomena. He also developed new fast-running kinetic codes for gas lasers, and as a result he formulated what today remains the standard successful theoretical model of the kinetics of high-power krypton-fluoride lasers.

Tom returned to the US Military Academy in 1977, initially as a faculty member in the English department. West Point was to serve as his home base for teaching, writing and research for the next 13 years, though his residence there was punctuated by frequent calls to service in Washington.

Tom's research during these years largely concerned the physics of high-power excimer lasers. His work in 1982–84 on rare-gas halide-laser models led to the scaling laws for and design of KrF lasers at the megajoule level for inertial-confinement fusion. Tom's analysis of the full range of existing experimental data led him to

Different Stars

There was something mathematical
The way the stars were fixed on the
flat sky,
Something that presumed a certainty.

Even between the blowing leaves
he saw
A greater order certainly revealed
To mind alone, unscattering the stars.

He walked into the wind. There was
A simple inference connecting
Wind with stars which he refused
to make;

Yet in his academic monologue
He felt the hidden inferences, one by
one,
Propelling him, the leaves that made
the wind.

The road crossed over the hilltop.
Below, beyond, the stars he had not
seen
Grew deep into the darkness and
destroyed

What wind and mind had made; the
different stars
Distorted the night sky so all the
universe
Became, in the synthetic reality,

Less real. What frightened him was
not
The moonless wind, the road
becoming
No road amidst the clear dark all
ahead;

It was a new lack of certainty.
In the middle of the road he had
arrived;
Within his mind, the possible
geometries

Bloomed silently like snowflakes,
each complete
And carefully itself, millions of them—
And no way of knowing, no way at all,

Why only one was real, or whether
Real was a concept relating space
and stars.
It was not. What seemed real was
wind

Over the lost road and dark beyond,
Where the only order was his, an
arbitrary
Apprehension, wind between the
certain stars.

—TOM JOHNSON