

Tim Cranmer

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Tim Cranmer Made The Unseen Visible

by Buffa Hanse

What Tim Cranmer, who died Thursday, November 15, 2001, told the *Courier's* Bob Deitel (Sunday, February 15, 1998) about the function of science is true of his life. Like a microscope or telescope, Tim Cranmer's tools and personality made "the unseen visible." This principle was at work in his research and his inventions and in the way he helped and influenced people. Tim Cranmer, Louisville's own blind inventor, left the blind of Kentucky and the world a legacy of love and improved Braille literacy.

His research into the creation and production of tactile graphics demonstrates the process of actually making the unseen visible. Through the production of raised objects, the blind may one day observe the world of the untouchable--the very large and very small--the stars and bacteria. Most tactile graphics depend on a blind person's memory of what is represented because the precision and detail of most pictures or objects are not clearly represented by raised graphics. Typically there is either too much detail, resulting in clutter, or only a bare outline, resulting in limited information.

The International Braille Research Center, which Cranmer founded, is engaged in research into the creation of graphics that can convey the most detail and precision with the least clutter. Harold Snider, the current chairman of the Braille Research Center, commented that "Tim advanced the use of Braille and technology more than any other blind inventor of this century, and his spirit sparked others to follow in his

footsteps." For example, Cranmer's modified Perkins Braillewriter was the first electronic Braille printer. Today Braille printers, based on Cranmer's pioneering work, print accurate Braille from documents translated by the tap of a key or click of a mouse. Sighted people who do not know the code can now print much of this Braille.

Cranmer was also instrumental in demonstrating the need for one unified English Braille Code. Currently there are codes for literary, mathematical and scientific, and computer Braille, and different symbols in each code represent the same print character. The dollar sign is one good example because it is represented by a different symbol in each code. Having one code would simplify learning Braille, teaching it, and producing computerized Braille documents.

One of Cranmer's best-known adaptations now bears his name. He modified the Chinese abacus so that blind people could use it to do arithmetic. By putting felt backing on the abacus, he stabilized the beads so that they would not move by themselves. Using an abacus makes unseen processes visible and tangible in that students can execute the actual steps of their work. They must understand the manipulations in order to complete problems on an abacus, unlike punching keys on a calculator. Louisville's American Printing House for the Blind sells thousands of Cranmer Abacuses every year.

Cranmer's other inventions show the depth and breadth of a curious mind constantly at work developing tools to make the unseen visible for the blind. He developed a vacuum-curing process for making costume jewelry out of plastic, which he sold himself. He developed audio/tactile Braille displays for use with clocks, stopwatches, clinical system monitors, etc. He created a Braille font with tactile graphics for use with the Pixelmaster. He developed the Speaqualizer Speech-Access program, one of the first effective screen readers.

He made major contributions to electronic circuitry and design for the Braille 'n Speak and the Braille Lite, which are distributed by Freedom Scientific. These notetakers are similar to Palm Pilots or small laptops. The ability to take notes rapidly, download and print out Braille and inkprint material enables blind people to compete on terms of equality with their sighted peers in school or on the job. Again the unseen is visible; the blind are in the workplace and classroom. Blind switchboard operators at the University of Louisville and Kentucky also used Cranmer's talking telephone directory.

Self-educated after completing sixth grade at the Kentucky School for the Blind, the Portland [a neighborhood in Louisville] native worked as a piano technician, pianist, and workshop worker before devoting thirty years to Kentucky rehabilitation for the blind from 1952 to 1982. After heading this state agency, running its newly created technology division, and helping other blind Kentuckians insure the agency's independent status as the Kentucky Department for the Blind, Cranmer retired from one career to continue another.

Working from home when possible, Cranmer brought the International Braille Research Center and the research and development arm of the National Federation of the Blind into being. This group of blind people, which Cranmer credited as having given him his life when he received its prestigious Jacobus tenBroek Award in 1980, is the largest advocacy group of the blind in the country. Cranmer served as the First Vice President of the Kentucky affiliate of the NFB for years, mentored its members, started the first state Computer Users Division, and much more.

In 1979 Tim Cranmer became Dr. Cranmer when the University of Louisville conferred on him the honorary degree of Doctor of Applied Sciences. The National Rehabilitation Association honored him with its Outstanding Service award. Boston University presented him with its Neil Pike Award for Distinguished Service. And the

NFB of Kentucky honored Dr. Cranmer with its Susan B. Rarick Award for Outstanding Service to Blind Men and Women. In addition to these awards, he received the Louis Braille Award just last summer from the International Braille Research Center for his advancement of Braille research, production, and literacy.

Cranmer wrote significant scientific materials that have been published in *the Braille Technical Press*, *Popular Electronics*, and other magazines. He has made presentations at the International Congress on Technology for the Handicapped, the International Conference on Technology sponsored by the American Foundation for the Blind, and a conference at Trace Research Center at the University of Wisconsin; and he presented papers at all four U.S./Canada Conferences on Technology for the Blind sponsored by the National Federation of the Blind and the Canadian National Institute for the Blind.

Much less well-known than his contributions to the field of blindness technology but much more long-lived and valued as a legacy was his ability to spark visions of the possible in others. In addition to influencing those on the national technology-for-the-blind scene, "Tim always had time, a positive word, and a bit of music and wit for his friends, blind and sighted alike," as Dr. Hilda Caton, Professor Emerita of the University of Louisville, noted. He shared whatever he had with whoever needed it without fanfare or remuneration. In one year he anonymously gave ten state-of-the-art computer systems to blind Kentuckians and trained many of them to use the screen-reading programs that came with them. In the same year he anonymously gave away a Braille notetaker, helped write grants, hired a blind woman, and gave cash to meet the transportation needs of blind people in Louisville. He even loaned out his secretary's talents. For giving this time, talent, and money, "He expected only that the recipient would in turn give whatever he had when asked," said Cathy Jackson, President of the NFB of Kentucky.

Though Cranmer was the "Thomas Edison of the blind" as Lesley Stahl called him on a "Sixty Minutes" broadcast, he was also a  mensch,  a real human being. Though he was not a formally religious person, his actions and character exemplified Judeo-Christian ethics. His modesty and generosity were rare among the brilliant. It was this catalytic combination of love, intelligence, generosity, and wit that was his true genius, a model for the blind to emulate and a legacy to love.