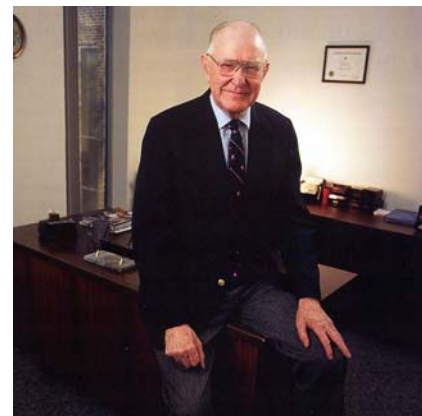


Whitey Bro

The Father of Teflon® FEP

Manville “Whitey” Bro grew up on a farm with his parents, originally from Denmark, and 11 siblings. He attended Iowa State Teachers College (ISTC) after graduating from Audubon High School in Audubon County. “Living in Baker Hall at ISTC was classy compared to home on the farm. In Baker, we had showers, my own room, and a desk in the room,” Bro remembers. Nine of Bro's brothers and sisters also attended ISTC, and Bro recalls that they borrowed money from each other, took care of each other, and later realized that their ISTC experience bonded them for a lifetime.



“Whitey” Bro

Chemistry Comes Alive

Bro's chemistry background was well-grounded at Iowa State Teachers College, says the chemistry graduate. “At ISTC, I met Dr. R. W. Getchell, who really made chemistry come alive for me. He taught me about the periodic table and put some order into my universe so that, philosophically, it all made sense. I remember one summer I served as his laboratory assistant, and we taught chemistry to all of the summer school students. Oh, I dearly loved that man.” Whitey moved on to his Ph.D. in organic chemistry at the University of Iowa and the much larger world of DuPont.

DuPont – A Paradise for Bright Inventive Minds

DuPont hired Whitey Bro after graduate school, and he moved to the company's headquarters in Wilmington, DE, to join a team of inventors looking for materials that would enhance Teflon®. He describes DuPont as a “paradise for bright, inventive minds.” “When I was awake, I was working and so was everyone else. There were so many things to discover. No matter what your personal background at DuPont, brainpower and dedication counted. Period!!”

Dr. Bro's challenge was to create a Teflon ® copolymer that could be melted and extruded to coat wire, to form tubing, and to be injection-molded into chemically resistant objects. “I fooled around with the polymer structure, adding fluorine atoms and cooking up several copolymers during the mid-'50s. Among six or seven with copolymer possibilities, Teflon ® FEP performed best technically at the lowest cost. And customers who secretly tested it liked it enough that we thought it might have a promising future.”

Dr. Bro built flexibility and versatility into Teflon ® FEP, while retaining the superior chemical resistance and electrical properties of its benchmark precursor, PTFE. “Once in a guy's lifetime he gets an invention that makes some money,” Bro says of his portion of the Teflon® FEP (fluorinated ethylene propylene) invention. “And that's the wonderful thing for me. After years of work, we patented Teflon® FEP in 1960. Of course, inventions like Teflon® FEP don't happen overnight, and it takes many trial runs to get it right.”

Sliding on Snow

Bro recalls that during the testing stages when his team of scientists were making sheets of Teflon® FEP, several sheets were always left over. “So, I'd take them home to my three girls and in the winter they'd use them to slide on the snow. The sheets were already very slick. My girls had sleds, but they loved this – it was Daddy's product.”

Big New Uses for FEP

In addition to his basic research efforts, Bro contributed to the development and marketing of Teflon® FEP. In the early days after Bro's discovery, Teflon® FEP was used to insulate wire and cable, to make tubing of various diameters, and to line pipes and valves that are used in the chemical processing industry. The polymer really took off as the computer industry grew and computer networks proliferated. Teflon® FEP is the material of choice for the networking cable that is sometimes referred to as plenum wire. The plenum spaces in buildings are the areas above dropped ceilings through which plenum wires run that connect computers and other devices into Local Area Networks. Plenum spaces contain not only computer cable but also insulated cables for telephone, electricity, and other applications and, therefore, the flame resistance of Teflon® FEP is a safety bonus. Nothing brings this message more to mind than the high-rise fires of the 1970s, such as the MGM Grand fire in Las Vegas, when older, flammable wire coatings promoted rapid spread of the fire through the plenum spaces.

The superior fire resistance and insulating properties of Teflon® FEP insure that applications for the polymer will continue to grow in fields as diverse as computer cables and home wiring. Bro's product can be found in almost any building in the world more than 10 stories high, and he has traveled the world over explaining how to use Teflon® FEP, where to use it, and how to make it just right.

Career in Dupont

For 34 years, Manville “Whitey” Bro worked for DuPont in Wilmington, DE, enhancing his reputation as the “father of Teflon® FEP.” Over the years, he worked in research, development work, and product management. His scientific inquiries eventually included 12 patents for various products.

In these years:

- He visited many universities and laboratories to help Dupont recruit PhD candidates for its various laboratories throughout the Company.
- He helped develop Teflon 6C fine powder as the standard for military wire applications.
- He helped develop tubing for high pressure, wire reinforced, hydraulic hose and fuel line applications.
- Later, he assisted in the development of PTFE fine powder for porous sheet and clothing applications.
- In later years, his adaptation of Teflon PFA to extrusion and injection molding applications was a major emphasis.
- He was the product manager for fine powder for many years.

After a long career in DuPont Fluoroproducts, Whitey retired in 1985

Bro Lifetime Achievement Awards

In May, 2000, DuPont recognized Bro's lifetime achievement in working with Teflon® FEP. First, they named a series of awards for him, and then honored him as the first recipient of the Bro Award for Life Achievement in Fluoropolymers. Bro said this award was “the most important thing that happened to me and my wife as far as the technical part of Teflon® inventions is concerned.” When Bro received the award at a ceremony in West Virginia, he said, “I walk with a cane so the whole program could have knocked me off my feet – it was overwhelming. I didn't understand what happened until I got home.”

Still Consulting and Loving It

Bro's lifetime work in the Fluoroproduct world extends far beyond his retirement in 1985. He continued consulting for DuPont for another 17 years in development and product management. And even now, at 79, he still works two days a week for DuPont's Technical Services Division (through Delaware Marketing Services), answering questions from customers all over the world, and loving it!!!

Whitey and Marjorie Bro live in Wilmington, DE and have 3 married daughters and 2 grandchildren. Whitey, who is always upbeat and fun to talk to, says with a smile "Life is full on all fronts."

Article Sources

- 1. Interviews and input from Dr. Bro**
- 2. Alumni Profile: Whitey Bro, "Teflon® is his game." Winter 2002 Issue of The University of Northern Iowa magazine, with permission.**
- 3. Various Dupont articles**
- 4. Photo Courtesy of Dupont**