

Host: Back in the early 1950s, a family looking for an ideal place to live would have been lucky to settle in Montrose, Colorado. Nestled near the San Juan Mountains, Montrose was not only scenic, it was safe. The most dangerous spot in the entire town of 5,000 people might have been the local high school science classroom.

Dr. Carl Burtis: That's where I really learned to love chemistry, especially sodium, potassium, and things that blow up.

Host: That's Carl Burtis, Staff Member in the Health Services Division of ORNL, the Oak Ridge National Laboratory. He and his friends would line up corked test tubes filled with dilute hydrochloric acid and a little chalk, and point them directly at the teacher.

Dr. Carl Burtis: He would be lecturing when these things started going off. Corks would whiz right by his head, and he acted like it didn't even happen.

Host: Had the teacher been a real chemist and not as Burtis learned years later a social science teacher filling in for a year, he might have told the future generations of Montrose students about the time Carl Burtis pulled pranks in his class.

He would have recounted how the mischievous boy went on to become one of the most serious and eminent clinical chemist of his day. Admired not only for the hands-on role he played in developing several major instruments, notably the Centrifugal Analyzer, but even more for his uncanny ability to find solutions to some of the big problems in clinical chemistry.

Dr. Robert Rej: I think Carl really has a knack when faced with an enormous and amorphous problem of systematically reducing it to its logical components.

Host: That's Robert Rej, Director of Clinical Chemistry at the Wadsworth Center for Laboratories and Research of the New York State Department of Health.

Burtis would draw upon this talent as he rose through the ranks of the main organizations and institutions of his field. He would become a towering figure, professionally, and at 6'5", physically.

Dr. Ed Ashwood: A lot of people have to look up to Carl.

Host: Said Ed Ashwood, professor of pathology at the University of Utah. But for Montrose students, the story's biggest twist would come when they learned how Burtis as senior editor

of the most widely used textbooks in his field has made the biggest bang of his career exactly where he began, in the classroom.

No one might be more surprised by the tale than Burtis. To hear him trace the arc of his life is to be reminded of one of those flying corks, randomly landing here or there.

- Dr. Carl Burtis: I would have to say my career just kind of unfolded.
- Host: His father would have liked his son to enter the family meat packing business. As kids, Burtis and his younger brother Dick would spend hours working in the plant and accompanying their dad on his sales route.
- Dr. Carl Burtis: My brother and I have always been in and out of grocery store, supermarkets, restaurants, and cafés.
- Host: Ironically, it was his father who helped spark Burtis' infatuation with chemistry. Born on July 3, 1937, Burtis treated July 4 as his personal holiday. As the date approached his dad would order an array of explosive devices that included thunderbolts, sky rockets, Roman candles, and cherry bombs.
- Dr. Carl Burtis: I was absolutely just nuts over fireworks. Reading an Encyclopedia Britannica about how they were made really got me interested in chemistry.
- Host: When the time came for college he wanted to study chemistry, but torn by his father's expectations, he majored in animal nutrition. It was there at Colorado State University that he began a kind of dance, one foot in the rarefied world of chemistry, the other in the grittier realm of real life applications, that would continue throughout his career. It was at a real dance, a mixer, that he met his wife, Marvel.
- Dr. Carl Burtis: I just walked in and saw her and that was it.
- Host: They married in 1959, and one year later had Laura, the first of their three daughters. Burtis toyed with the idea of going to medical school after graduating college. But with a new and growing family he headed back to Montrose to work in his dad's business, first in the plant, and then on the road, which was something of a stretch for the not naturally gregarious young man.
- Dr. Carl Burtis: Originally, I didn't want to be a salesman, but it was probably the best thing that ever happened to me. I learned so much about people.
- Host: Four years later, the family business now failing, Burtis began looking through graduate school brochures he

collected years earlier. One from Purdue University stood out. A year later he was in West Lafayette, Indiana, studying biochemistry.

To make extra money, he began working with the Indiana state chemistry lab, analyzing feed and fertilizer samples. That stint would lead to an offer by the ORNL Analytical Chemistry Division to work on a multidisciplinary project purifying large quantities of transfer RNA. It would be the start of a lifelong relationship with the Oak Ridge National Laboratory.

Apart from one year working for a company in California and four years at the Centers for Disease Control in Atlanta, he has remained at the Tennessee-based institution.

Early in his tenure he made a name for himself working with Chuck Scott and Norman Anderson, developing high resolution liquid chromatographs and the centrifugal analyzer. His association with these mentors and others led to the development of his personal mantra.

Dr. Carl Burtis: Surround yourself with good people, and good things are going to happen.

Host: Though he would write over a hundred scientific papers, the once shy Burtis found himself increasingly drawn into more social and administrative arenas. In 1989, he was named president of the American Association for Clinical Chemistry. The following year he served as general chair of the International Congress of Clinical Chemistry, which drew over 18,000 chemists, then a record in meeting attendance.

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In the early 1990s, he was handpicked, along with Ashwood, by Norbert Tietz to takeover editing of the famous *Tietz Textbook of Clinical Chemistry* and *Tietz Fundamentals of Clinical Chemistry*, considered by many to be the twin bibles of clinical chemistry.

Dr. Carl Burtis: I didn't know what the hell I was getting into.

Host: It turned out to be a perfect fit, drawing on his big picture skills and his good sense about people.

Dr. Carl Burtis: The hardest thing we have to do is develop the table of contents. Then we have to decide who will author what.

Host: According to Dr. Ed Ashwood, his contribution doesn't end there.

- Dr. Ed Ashwood: He can take a poorly organized chapter and do magic. It's amazing how he can reorganize it into something that's cogent and concise. It's nothing short of brilliant.
- Host: What may be most remarkable is how through it all he has had time to raise a close-knit family. He is surrounded by women—his wife Marvel, who until recently worked in the Environmental Science Division at ORNL, his daughters, Linda and Lisa (his first-born Laura is deceased). Perhaps the most unexpected event in his life was the entry in 2000 of his granddaughter Lindsey, who Burtis and Marvel are parenting.
- Dr. Carl Burtis: People often tell me that raising Lindsey keeps us young. I disagree, it keeps us focused. She is a blessing.
- Host: In his family and professional life he draws in a strong sense of humor that runs in the family.
- Carl Burtis: My mom came from a large Irish Catholic family, with a great sense of humor. She taught us how to laugh at ourselves and the world.
- Host: Burtis's love of jokes, evident in his high school chemistry classroom many years back, can still cause minor eruptions. As an example, we will give the last word to David Bruns, a professor of pathology at the University of Virginia. He said, probably once a week he sends me some email that he thinks is funny. Sometimes he sends it only to me because he thinks my sense of humor might be as crazy as his. One day he sent this thing, I laughed so hard, I spit on my keyboard.

Total Duration: 7 Minutes